TECHNOLOGY DEPT.

Gas Journal

VOL. 277. 106TH YEAR. LONDON, FEBRUARY 17, 1954. NO. 4733. PRICE 1/3

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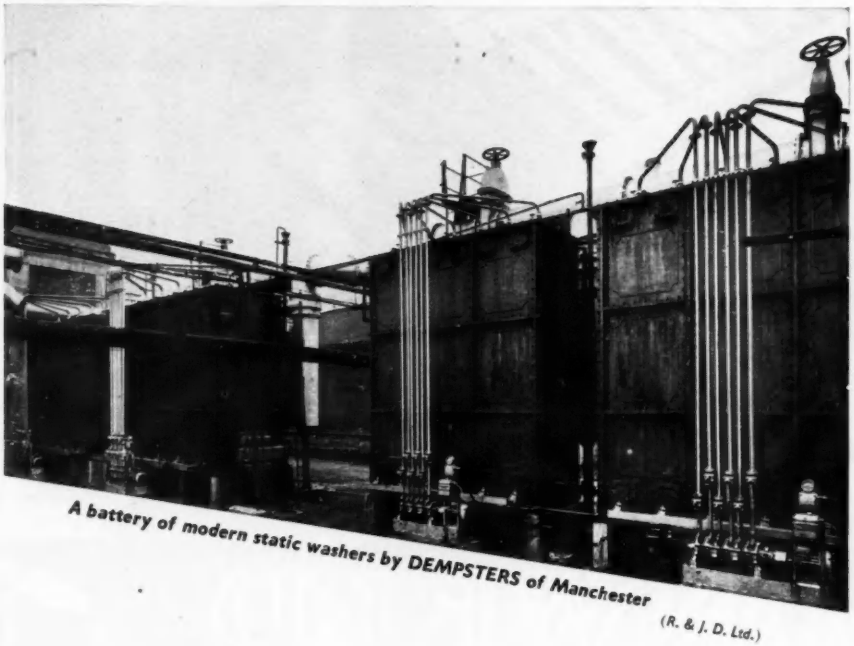

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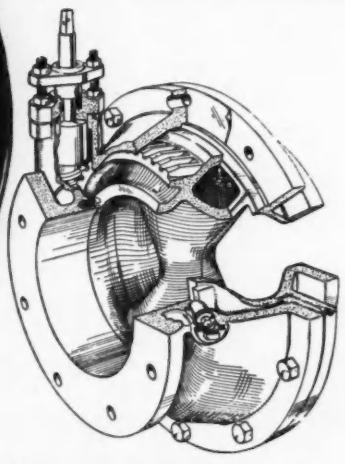

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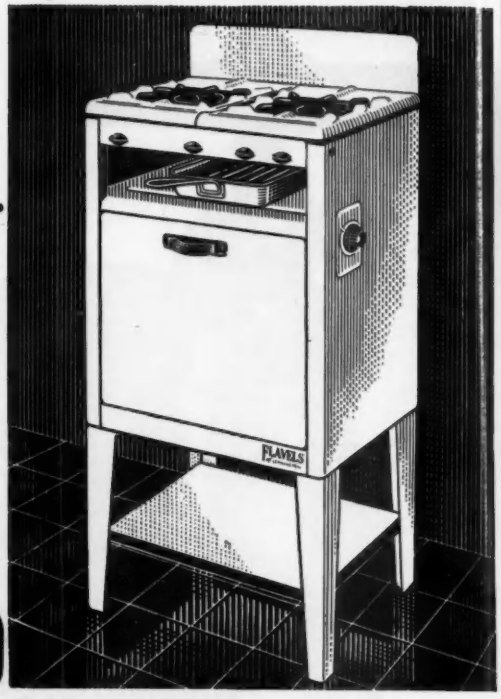

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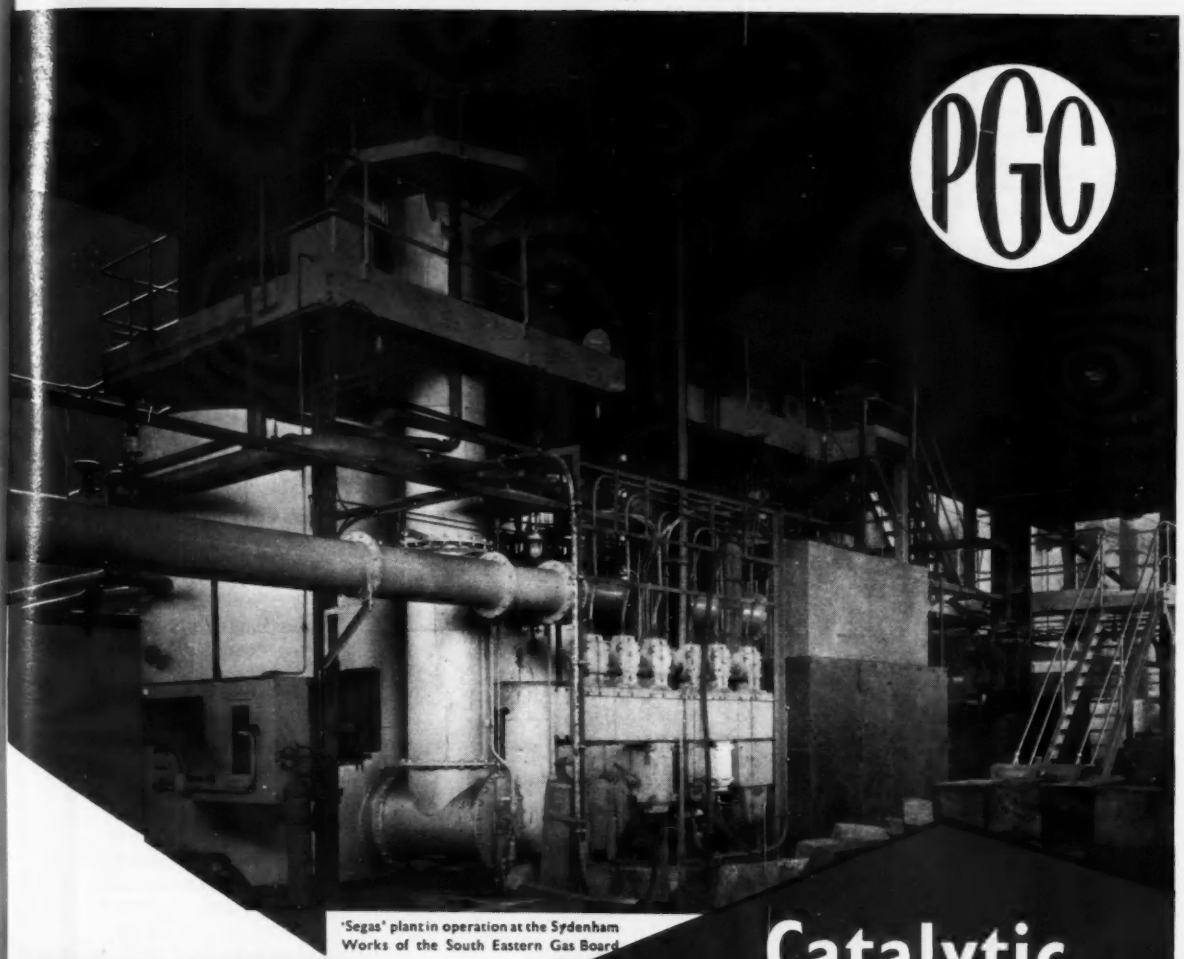

'Segas' plant in operation at the Sydenham Works of the South Eastern Gas Board

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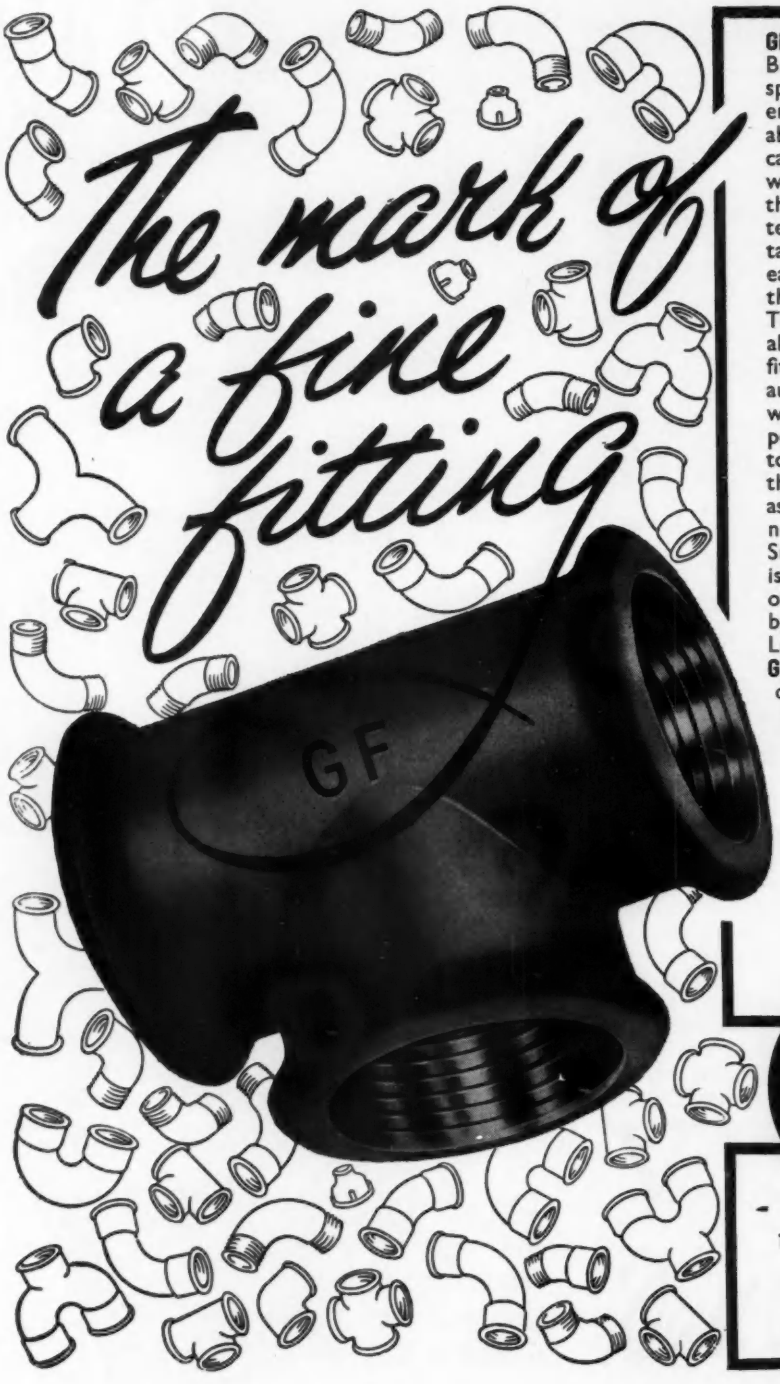

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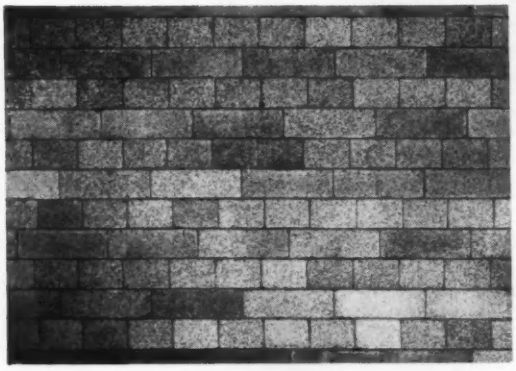

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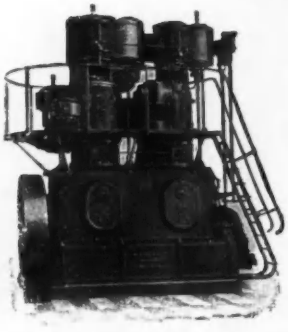

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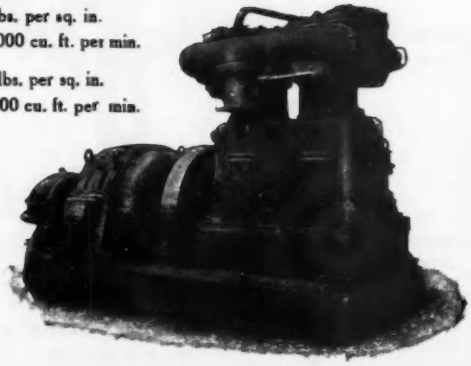
Two Stage. Pressures up to 120 lbs. per sq. in.
Capacities up to 5,000 cu. ft. per min.



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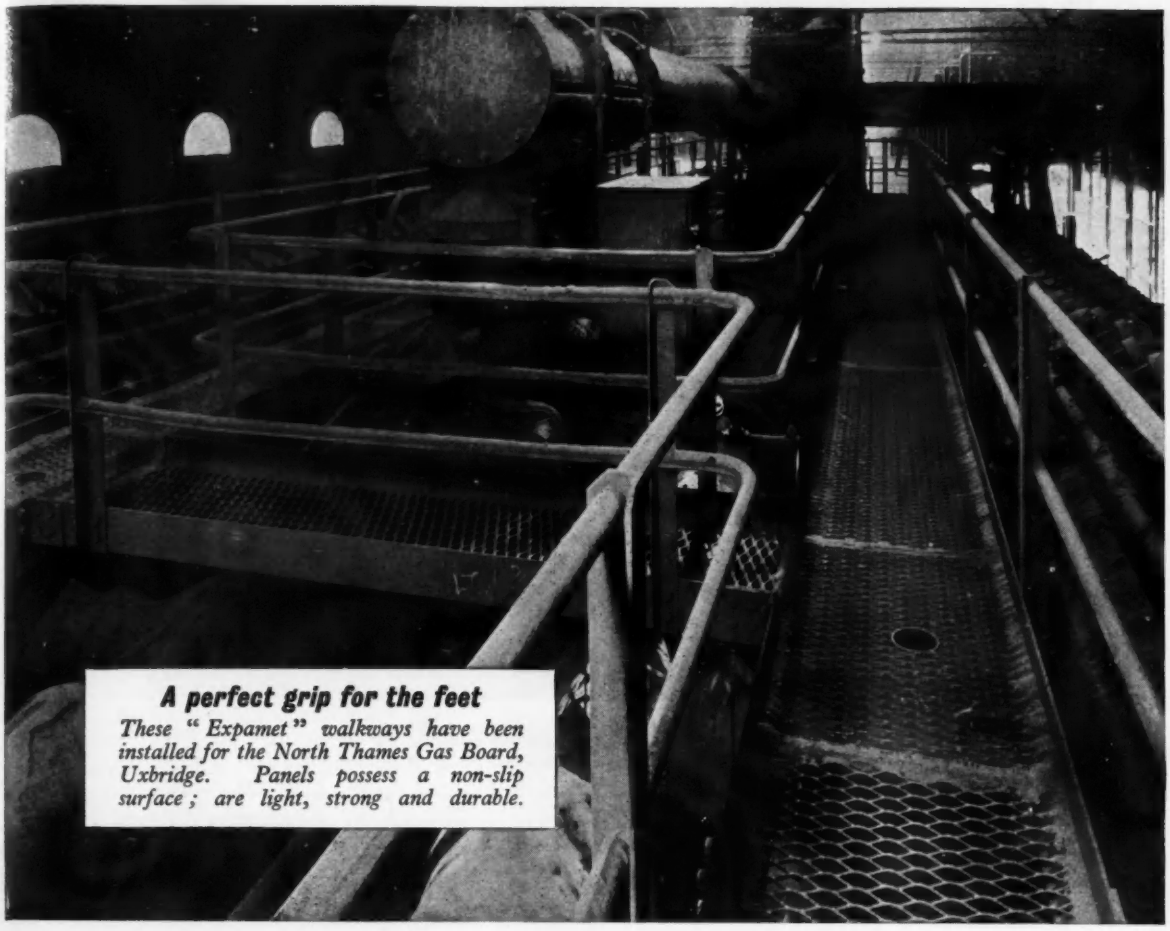

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These "Expamet" walkways have been installed for the North Thames Gas Board, Uxbridge. Panels possess a non-slip surface; are light, strong and durable.

Walkways of Expanded Metal—yet another use for this very versatile material

ONE of the most outstanding things about Expanded Metal is its tremendous versatility. It has hundreds — *literally* hundreds — of uses and imaginative executives are finding, daily, new and unsuspected uses for it. The above photograph shows how neat and serviceable "Expamet" walkways look when erected. "Expamet" Openwork Walkway Panels are specially designed for catwalks, gantries, etc. They can be made with cutouts or openings to suit structural or other requirements; and they are strong, light and durable.

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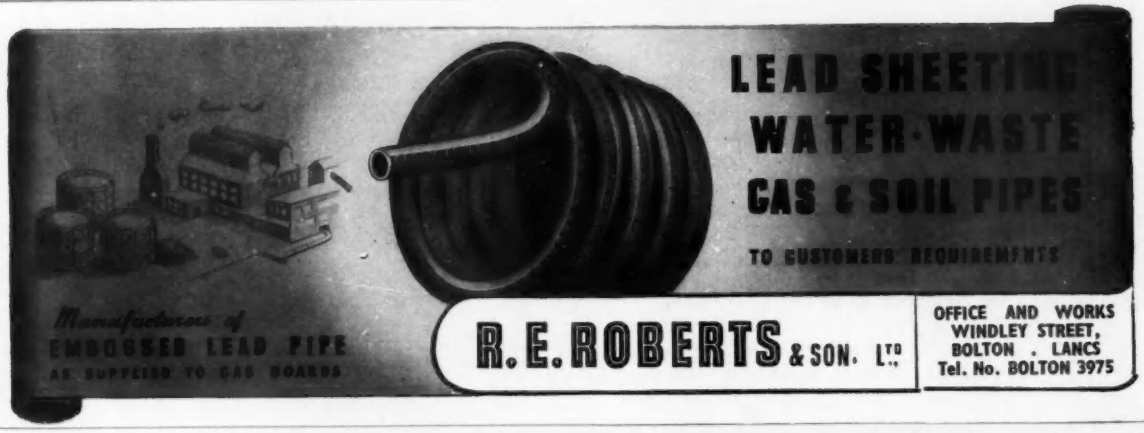

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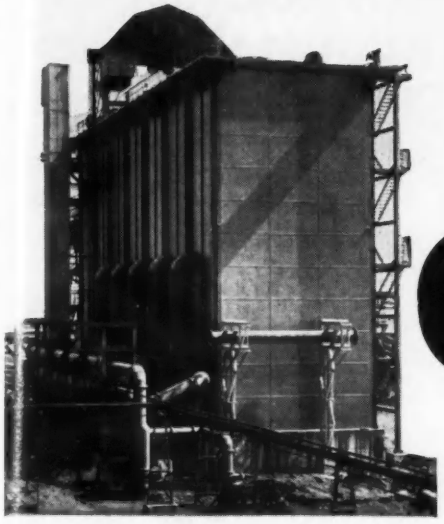

One

The first large Balfour-Lecocq Tower Box Purifier was completed at Rotherham. Its capacity soon to be doubled to 20,000,000 cu. ft. per day. A second purifier of 7,500,000 cu. ft. per day nears completion at Southall. The foundations are laid for a third at Bow Common.

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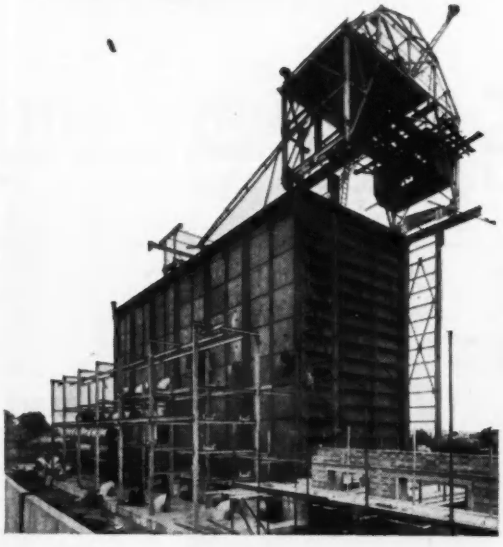
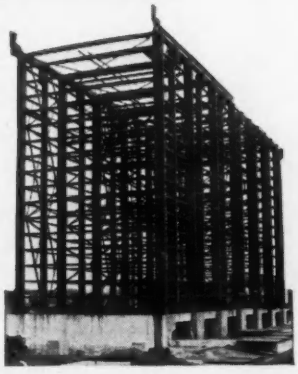


After

The unequalled technical resources of the Balfour organisation are at the service of those requiring detailed information on application of Tower Box purifiers or other gas equipment to their needs.



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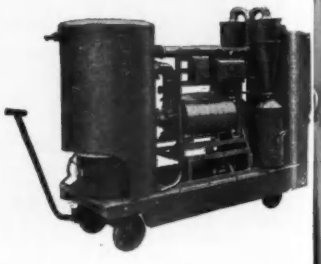

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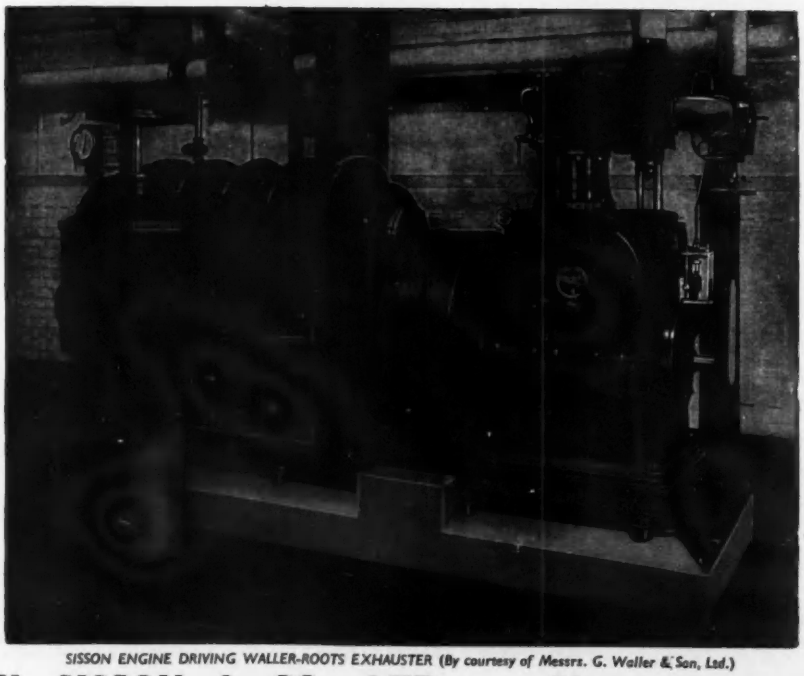

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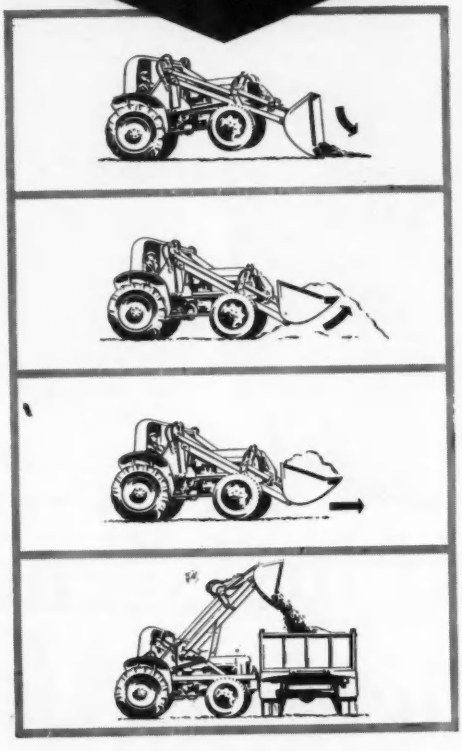

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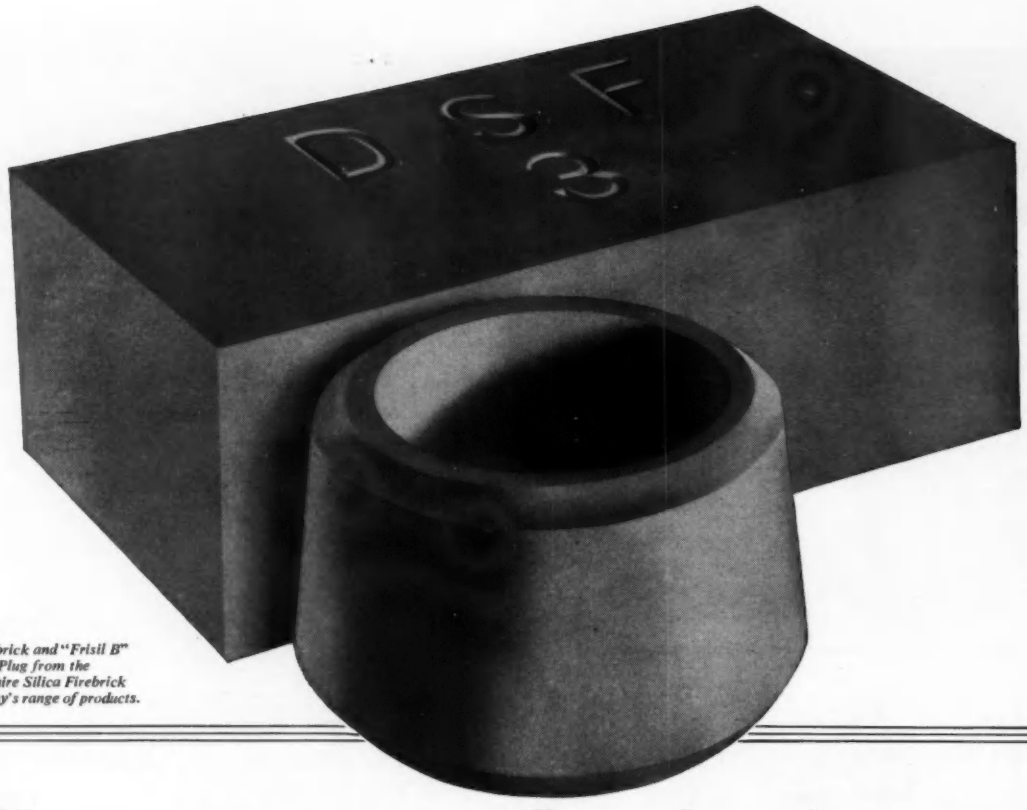

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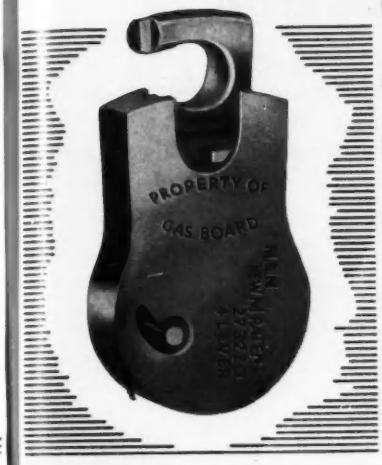

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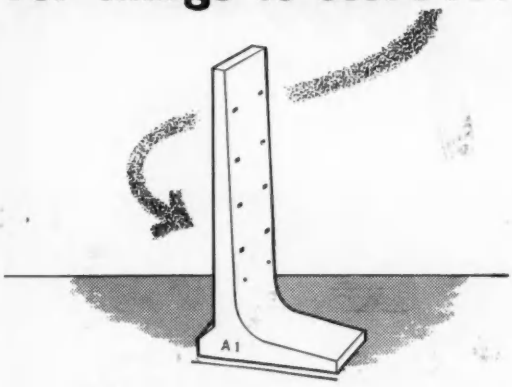

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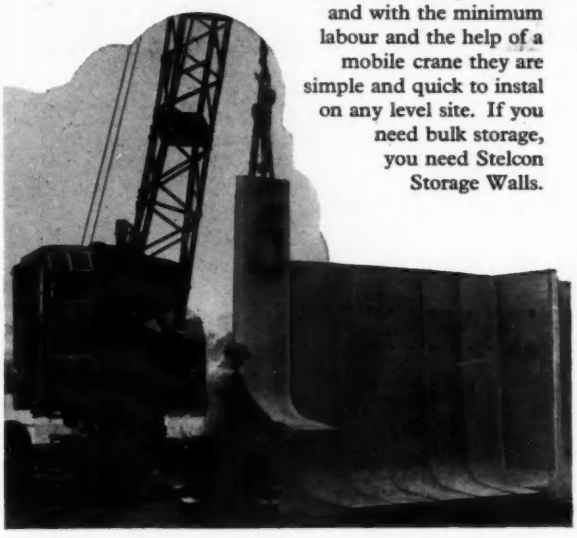

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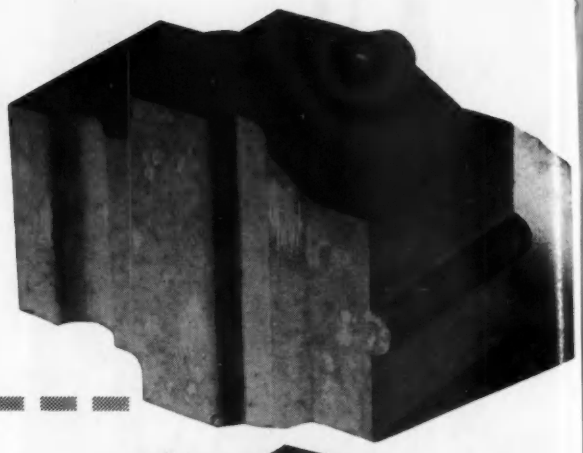

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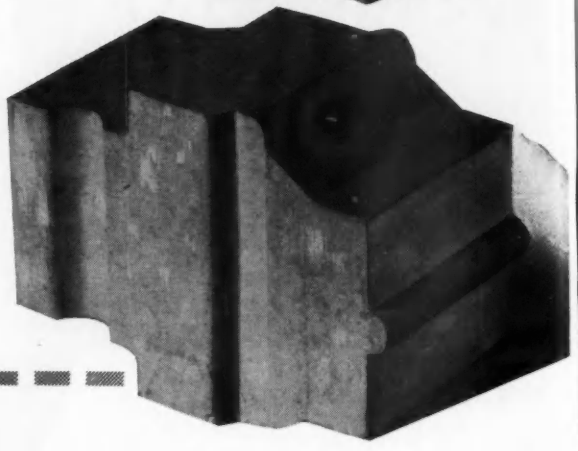

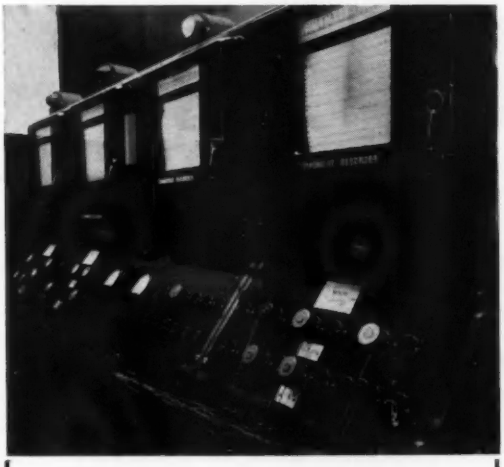

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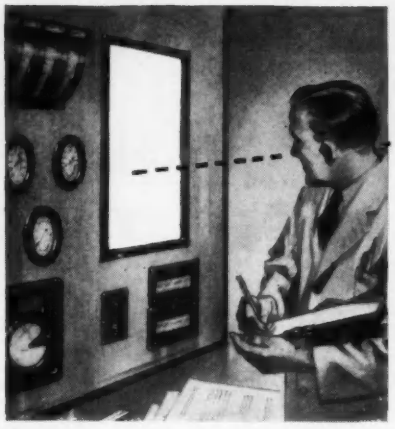

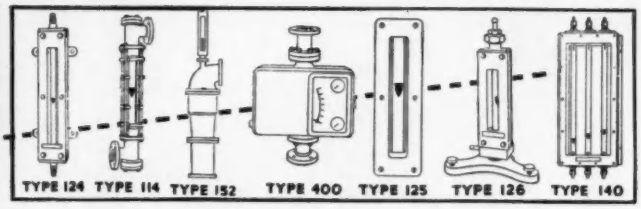

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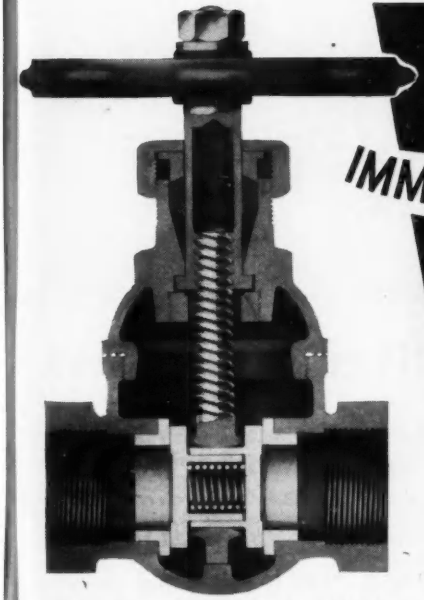

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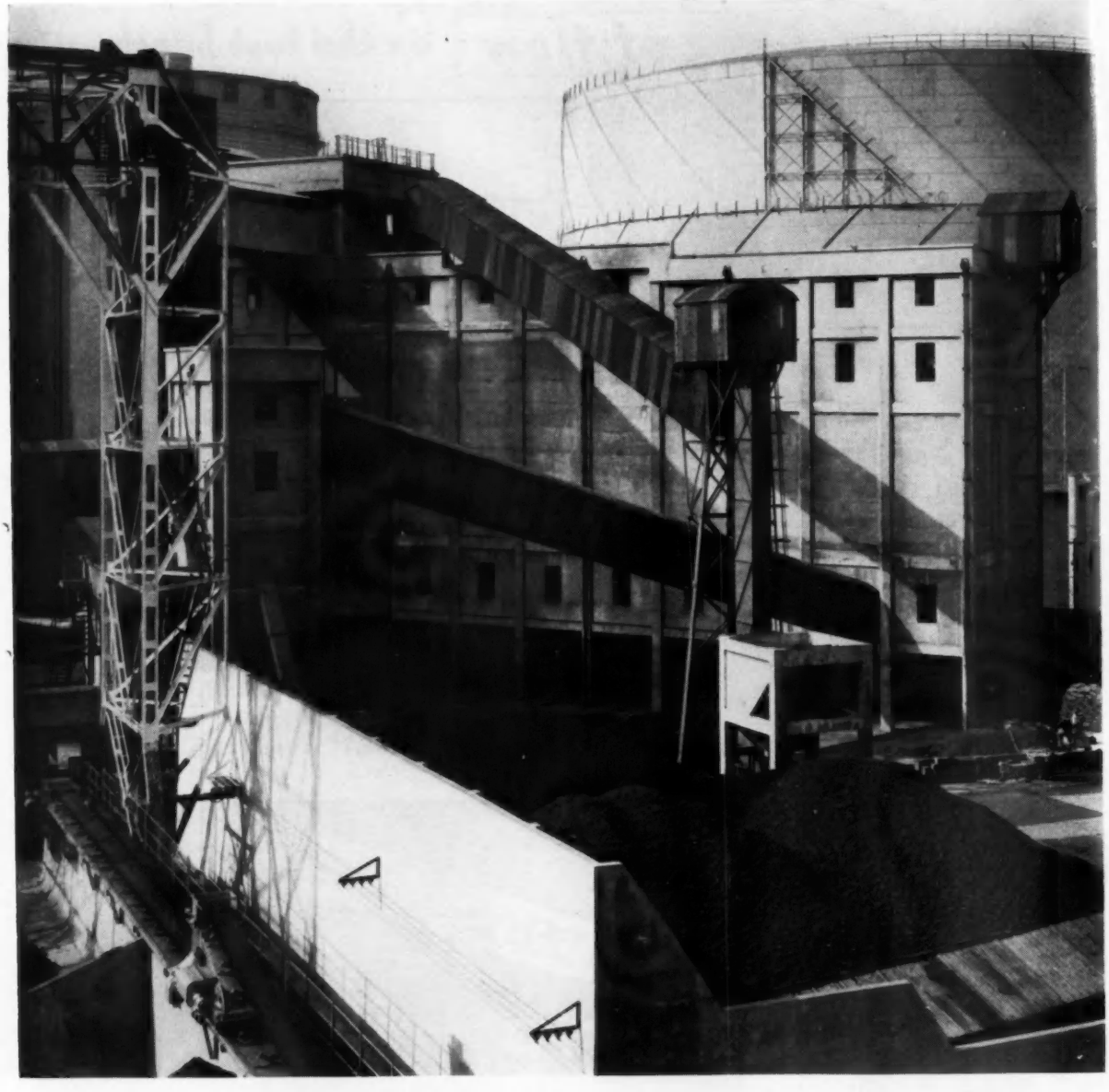

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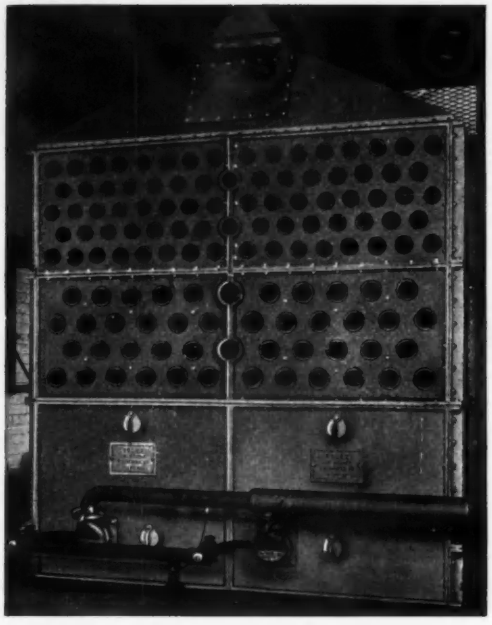

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Gas Journal

106th YEAR OF PUBLICATION

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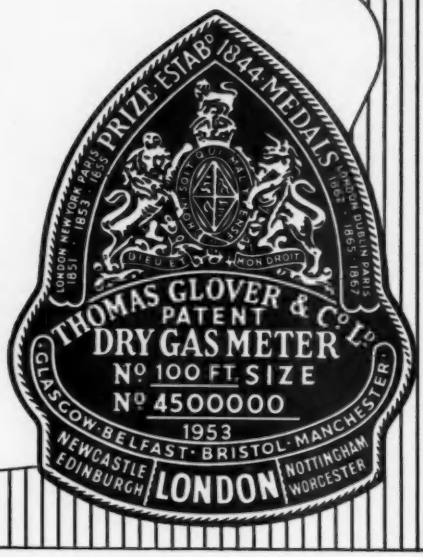

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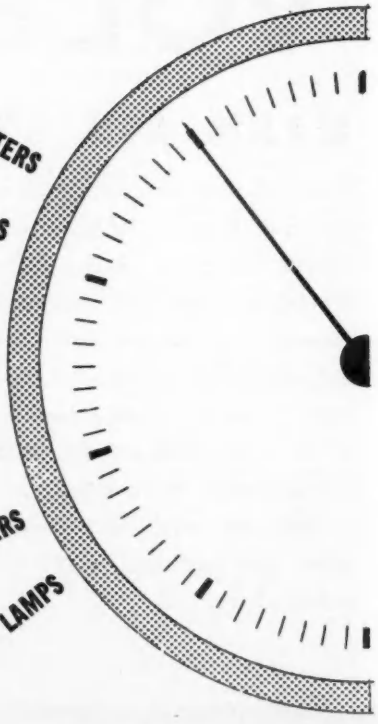

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Gas Journal

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CARBONISATION AND THE NATION'S COAL

The paper presented by A. F. Cottrell and T. W. Austen to the Yorkshire Juniors on town gas production is an excellent statement of the present position of the gas industry in the national fuel economy and of carbonisation in the gas industry. The authors reminded us that the gas industry, as a whole, had (as shown in the Ministry's Statistics of 1951) a thermal efficiency in excess of 75%, against 20% to 25% for all other coal users. In the last 30 years the gas industry has increased its production of gas by 178% from no more than 74% more coal. No wonder these authors can claim that 'if improvements of this kind were achieved by only a fraction of other users, there would very soon be an end to any fuel shortage.' Any idea that the use of gas may be falling in public favour is dispelled by the fact that since 1921, when the gas industry was already 100 years old, the volume of gas made has more than doubled.

The facts and figures quoted in the paper, though not new in themselves, establish the still unchallenged premier position of carbonising plant in the production of town gas and that of the vertical retort, and particularly the continuous vertical retort, among carbonising plant for this purpose. Thirty years ago the continuous vertical retort was already established and rapidly spreading abroad as well as at home. Fifty years ago it was in its extreme infancy. Intermittent vertical retorts and chambers were not much further advanced. Today vertical retorts and chambers are responsible for as much gas as all other types put together, with the continuous vertical carrying seven times as much as the other vertical types. And Cottrell and Austen are in no doubt about the reasons for this pre-eminence of the continuous vertical retort. Would it have secured that pre-eminence without the incorporation of steaming into the process? In spite of the abandonment of recuperation in the interests of economy of ground space and capital cost, fuel consumption in the continuous vertical retort is well below that of other types of carbonising plant with recuperation, and within one therm per ton of coal of that of regenerative coke ovens. If we deduct recoverable waste heat steam, in the last case by dry cooling of coke and in the first by the waste heat boiler, the vertical retort is an easy winner. The practically complete recovery of the residual heat of the coke in the C.V.R., added to the use of the products of combustion for heating the incoming charge of coal, has more than made up for the absence of recuperation and regeneration in the usual way.

True, the C.V.R. is not without its difficulties, particularly when slacks are to be carbonised. But in a remarkably informative passage in this paper it is shown that it is not likely that the gas industry will be asked to take more slacks. 'In fact the reverse seems likely to be the case and the gas industry may have to take a bigger percentage of graded coal than at the present.' And it is rumoured that methods are now being developed which will bring the possible throughput of slacks well above those now attainable with graded coals. For, as Dr. S. Pexton foretold, the continuous vertical retort is proving capable of greater development than any of its rivals. Already the basic fuel consumption has been reduced from the 12½% of 10 years ago to 10%. And nothing has yet been done to standardise the pre-heating of primary air from the residual heat of the coke, which he recommended. Another excellent passage in the paper makes a strong case for the light, free-burning coke of the C.V.R. 'The recent move towards smokeless zones and the many thousands of coke fires sold in recent years make it appear that the possibilities of selling coke for space heating have never been so favourable to the gas industry as at present.' The intelligent optimism of this passage is admirable. Perhaps one might demur at some of the basic figures. Where can one buy gas at 1s. per therm—and would it not be better to reckon with electricity at 1d. per unit? But after a display of the arguments with price data there is the inescapable conclusion, 'surely, with facts such as these placed plainly and often before the public, coke cannot fail to sell.'

It is perhaps the last page or two of the paper which will be read with the closest attention, coming as they do from the pens of technicians of one of the greatest constructional engineering organisations of the fuel industry in this country. One of the more detailed points, not by any means of minor importance, is the high value they put on the value of skilled retort house supervision. Such facts have been stated before. Here they are repeated with a wealth of data and logic which is surely irresistible. As to the future, there is no doubt that carbonising plant will continue for a very long time as the main method of making gas in this country.

The coke oven will have its place, and that place may become of increasing importance, at any rate over a

certain phase of the consumption of our coal supplies. It has its limitations. It demands a coal with sufficient coke strength to stand up to discharging by pushing. But it lends itself better to blending than any other type of plant, though its virtue in this respect is shared to some extent by the intermittent vertical. When we get down to non-swelling coals we must turn to total gasification. And though there seems little likelihood that such processes as those of the Lurgi type will at present, even on a very large scale, produce a therm as cheaply as the plants of existing practice, it is very desirable that such a full-scale trial as foreshadowed by Dr. F. J. Dent should be proceeded with without undue delay.

For some uncertain length of time the tail products of oil refining will be available in quantities which may grow to large dimensions, and room must be made for these in the nation's fuel economy. The gas industry is best adapted to make use of them. Problems of transmission and incidence of availability will have to be solved. Oil gasification presents a solution for some peak load problems. It is problematical, too, to what extent methane can be drained from the coal seams in this country (old in this connection) in economic concentrations. The conditions at Point of Ayr and Whitehaven are not repeated in many other coalfields. Is the natural gas found the other day a real petroleum product or is it merely another pocket of methane from the coal measures? These and other questions are raised by a wise and statesmanlike conclusion to a really valuable paper, well calculated to set in their correct perspective before the junior gas engineer the several lines along which advance has been and will be made in town gas production.

ACCOUNTABILITY TO PARLIAMENT

Nationalised industries in general, rather than any individual nationalised industry in particular, came under review in the remarkably inconclusive debate in the House of Commons on February 8 on the report presented last August by a Select Committee on methods by which Parliament might be kept informed of the affairs of those industries. Much that was said during the debate about nationalised industries in general does not apply with equal force to the gas industry in particular, partly because of the more direct contact which the Minister of Fuel and Power has with the area boards as compared with the regional units of some of the other industries, and partly because many of the flaws in the earlier nationalisation Acts were avoided in the drafting of the Gas Act, 1948. Since the passage of the earliest gas legislation, something like a century and a half ago, the gas industry has been conscious of the watchful eye of Parliament over all its activities, and although the Act of 1948 transferred its ownership from private and municipal bodies to holders of Guaranteed British Gas Stock it did little to alter the industry's sense of 'accountability' to Parliament; indeed it removed some of the old fetters and enabled the area boards to make and carry out plans that were, because of these fetters, incapable of being achieved by the larger number of the smaller former owners. We do not say that all is well in the gas industry. We discern in certain spheres a substantial loss of individuality; some of the more confident men in the industry, as well as some of the more timid, are inclined to look over their shoulders before they commit themselves to actions which they probably know in their hearts as well as their minds to be in the best interests of the industry. There is frustration here and there, and the industry has to look afield to preserve and even recover the encouraging relationship that used to exist between its directors—and they include members of the former gas committees—and its responsible officials. By and large, however, the industry is extremely well run; its improved efficiencies and mass economies are beginning to overtake rising costs arising from causes outside its control. The successive annual reports of the Gas Council and the area boards inspire confidence in the future of the industry.

It is from the point of view of such an industry that we study last week's debate, and we cannot help feeling that there is nothing the industry desires more than to be given sufficient freedom from Parliamentary interference to enable it to carry on with the tasks, already well understood by its responsible leaders, imposed upon it by the terms of the Gas Act. As one of the major nationalised industries, however, it cannot stand aloof from the question of accountability to Parliament, which has been studied ever since the first of the nationalisation Acts was passed. This was the essence of the terms of reference to the Select Committee whose report has just been debated, and which, as we said last week, is a problem still open to solution at a later date. The main proposal contained in the report was that there should be a permanent Select Committee of the House of Commons to keep Parliament informed about the aims, activities, and problems of the corporations which control the nationalised industries. It is expected that the Government will soon table a motion to give effect to that proposal, which, it will be remembered, was unanimously recommended by a Committee comprising almost equal numbers of opposing political parties. Last week's debate was equally non-party in its expression of views, and it is anticipated that the whole issue will be debated again when the Government motion comes before the House.

When the report was presented last August we invited Members of opposite sides of the House, as well as representative leaders of the gas industry of pre-nationalisation days, to express their views on the proposed setting up of the permanent Committee. With the exception of Commander Hyde C. Burton they were, broadly speaking, not averse to giving the proposal a trial, but they were not unaware of the dangers inherent in having a Committee which might tend to interfere with the day-to-day operations of the industry. Comment in the National Press on last week's debate was equally cautious. The *Financial Times*, which remarked that the more the matter is discussed the more obvious it is that the company system is the best, said: 'The real argument for the Select Committee is that if any kind of Parliamentary means of communication between the nationalised industries and the public is to be successful, it must be open to the passage of information and ideas in both directions. It may be that Parliament should examine the methods of organisation of the nationalised industries to see whether they are adapted to promote technical efficiency. A Select Committee is the more likely to be able to provide the platform for the informed debate which at present is so sadly lacking.'

The *Daily Telegraph* commented that the pros and cons of the proposed Committee seemed nicely balanced, but went on to say it would be stultifying if an accountability designed to promote efficiency should prove to impair it. It added: 'A possible alternative might be an independent Council for Nationalised Industries, with powers and duties similar to those of the proposed Standing Committee, which would submit written reports to Parliament, accompanied by the Boards' comments. The Boards might feel less inhibited by such a body than by a Standing Committee. But it is difficult to feel confidence that there is any wholly satisfactory solution. Unless one can be devised, "public control" must continue to remain the mirage it has been hitherto.'

The *Manchester Guardian* was more encouraging. It said: 'A well chosen Committee, representative, as it would be, of all parties in the House, would be an excellent body to receive regular reports of stewardship. Such accounting is required if the nation is to feel that it has any part in the industries it owns.' The conclusion reached by Colonel R. H. Studholme in the 'GAS JOURNAL' six months ago was that 'Nationalisation as a new experiment is bound to throw up new problems for which answers must be found by further experiment. That suggested in the report may prove no more than a palliative, or it may be the start of a new technique to oil the wheels of State ownership. Be that as it may, the proposal involves nothing drastic, ill considered, or irrevocable. It deserves a fair trial.' That trial will be made is evident. What most concerns us is the degree to which a further Committee of the kind can keep clear of political bias, keep down its expenses, encourage each of the nationalised and highly specialised fuel industries —and, indeed, be capable of the job which it sets out to do.

ATOMIC POWER FOR INDUSTRY

It is understood that shortly Canadian industry will be given secret information on the harnessing of atomic energy for the production of electric power. The Atomic Energy Control Board has stated that the information is being made jointly by Canada, the United States, and Great Britain, partners in the atomic energy field. In its report for the second half of 1953, the United States Atomic Energy Commission explains that it has embarked on a programme for constructing a reactor for power generation with an initial capacity of 60,000 kW. There seems to be no doubt that co-operation in civil development and pooling of material for civil purposes provide the only possible road to eventual co-operation on atomic energy in general. This has been stressed in *The Times*. In its editorial columns recently it has been suggested that the Commission's decision to go ahead with the industrial power reactor has been influenced by the fact that uranium-producing countries are demanding American help for building nuclear power plants and that in the absence of such help 'power-hungry countries might gravitate towards Russia' if Russia made the necessary technical progress. Australia and South Africa rank with Canada as the principal suppliers of uranium.

All these major discussions and suggestions have relevance to our own country. And we were interested in the comments of Sir Hubert Houldsworth, Chairman of the National Coal Board, at a luncheon given last week by the French Chamber of Commerce of Great Britain. Sir Hubert maintains that, even if atomic fission replaces coal as the principal provider of energy, coal in large quantities would still be needed as a raw material for carbonisation and chemical processes. The danger was, he said, that atomic energy would not come soon enough to take the load off coal. He could see no danger that it would come too soon. What always is at the back of our mind in these thoughts on the best use of energy is why natural gas cannot be transmitted from other countries to Britain. Technically there can surely be no economic objection. It devolves on the political scene; but present deployment of natural gas resources in a supersonic age makes very little sense.

NO CHANGE IN PURCHASE TAX

On the ground that it is better to know the worst than to be kept in suspense, the gas industry and the makers of gas appliances which are subject to purchase tax have welcomed the statement which Mr. R. A. Butler, Chancellor of the Exchequer, made in the House of Commons last Thursday. 'I have decided,' he said, 'that, subject to any unforeseen developments, I shall make no further changes in the purchase tax schedule in or before the Budget. In the light of representations I have received, I thought it right to announce this decision forthwith. There will be opportunities for debating the rates of purchase tax in the course of the passage of the Finance Bill.' The statement that there will be no change is in itself disappointing to manufacturers, and even more so to consumers, especially to young couples and families who are acquiring homes of their own. But the announcement caused little surprise, for earlier in the week Mr. Butler had warned the House that this was not a time when concessions of any type were likely. It had been hoped that the Chancellor would have been able to continue the reduction of the whole scale of rates which he began last year. Indeed, there has been evidence that consumers have been holding back in the hope of further relief; and over the week-end there was a revival in the purchase of appliances by people who took the philosophical view that it was no good waiting indefinitely for better times. Mr. Butler did not say whether his statement precluded any more changes for the rest of the year. He did, however, say that 'the House has now given the Government full power to vary purchase tax at any time in the year . . . . I can give no undertaking how this will be handled in the future, but it will be handled to suit the convenience of the traders concerned in the best possible way.'

Correspondence

HIGH DISCHARGE LOADER

DEAR SIR,—Since despatching our press release on January 20, we have been informed that the Merton overloader with a 12 ft. 6 in. discharge height is not the 'Highest Discharge Loader.' We apologise for having described it as such and assure you that the statement was made in good faith. We had never seen a public announcement of a loader with a greater discharge height than this and we did not know of the existence of such.

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Personal

MR. J. N. DEAN has been appointed Deputy Chairman of the Telegraph Construction & Maintenance Co. The executive duties of the Board will no longer be vested in a Managing Director, but will be carried out by a Managing Board, of which Mr. Dean, as chief executive, will be Chairman.

MR. S. BARRON, B.SC., who has been appointed assistant chemist in the Belfast Gas Department, is a son of Dr. Samuel Barron, who recently retired from the position of Medical Officer of Health for Belfast. Mr. Barron, who is a graduate of Queen's University, Belfast, was formerly on the staff of Nestles, Ltd., London, and Victoria Bridge, Co. Tyrone.

DR. W. GUNN, M.B., CH.B., D.I.H., has been appointed Chief Medical Officer of the North Thames Gas Board in succession to the late Dr. F. G. Holman. Dr. Gunn will, for the time being, continue to carry out his present duties as the Board's Medical Officer for the Eastern area. Another appointment announced by the Board is that of MR. E. C. J. REID, who will undertake the duties of Station Chemist at the Lea Bridge Works.

MR. W. M. PETTIGREW has retired after more than 40 years' service in Portadown Gasworks, of which he has been Manager. He is being succeeded by MR. J. WILGAR SMITH, who has been Manager of Portrush Gasworks since 1951. Mr. Smith is a native of Hawick, Scotland, where both his father and grandfather were gas managers. He is also a nephew of a former manager at Belfast. Before leaving Portrush, Mr. Smith was the guest of honour at a farewell dinner, at which Mr. W. R. Knox, Chairman of the Urban Council, presented him with a clock.

MR. W. H. WISE, Manager of the Sherborne and District Group, Southern Gas Board, Western Division, since nationalisation, was the guest of honour at a dinner at the Carlton Hotel, Bournemouth, on February 9, to mark his retirement, which took effect on January 30. Mr. Wise commenced his training at Sedgeley gasworks, Staffordshire, in 1912, and in 1915 was an articled pupil and assistant at Tipton gasworks. In 1919 he was appointed Engineer and Manager of the Droitwich Corporation Gas Department and in 1926 he went to Sherborne Gas and Coke Company, as Manager and Secretary, being appointed to the Board in 1934. Mr. J. T. Haynes, Manager of the Western Division of the Southern Gas Board and President of the Institution of Gas Engineers, proposed the principal toast at the dinner, and said Mr. Wise's record of 43 years' service in the gas industry was a proud one.

MR. W. M. TAYLOR, Second Assistant Engineer and Chemist of the Timaru Gas, Coal and Coke Company for the past five years, has been appointed Engineer and Manager of the Waimate Gas Company, South Canterbury, New Zealand. Mr. Taylor was educated at the Timaru High School, from where he matriculated and commenced the B.Sc. Course at Canterbury University College, Christchurch, New Zealand. He is Secretary of the South Canterbury Alpine Club and is interested in climbing in the Southern Alps. He is also a keen member of the Timaru Squash Club, and a member of the Gas Institute of New Zealand.

MISS C. A. WOOSTER, M.B.E., who was formerly Secretary of the London and Counties Coke Association and who will be retiring shortly, was recently the guest of the Domestic and Industrial Committee of the British Coking Industry Association at a luncheon at the May Fair Hotel, London. Mr. Leslie O'Connor, C.B.E., in proposing her health, paid tribute to the efficient and cordial manner in which Miss Wooster had always carried out her duties and which had led to close co-operation between the gas and coking industries in the domestic and industrial coke markets in the South of England. Mr. O'Connor went on to say that the members of his Committee had personally contributed to offer a travelling clock to Miss Wooster as a souvenir of her co-operation with the coking industry. Miss Wooster, in reply, said she had always enjoyed the work which brought her in touch with the coking industry and added that, with the public urge to see that effective steps were introduced to end the pollution of the atmosphere by smoke, the future of coke seemed bright.

Obituary

MR. C. A. GOODALL, Managing Director and Secretary of Goodall, Clayton & Co., Ltd., colliery engineers and makers of elevating and conveying machinery, died on February 3. In 1929, Mr. Goodall was Chairman of the Council of the Society of British Gas Industries, and he has always been held in high esteem in the gas industry.

MR. J. E. HENWOOD, who retired from the Gas Light and Coke Company in 1938 after 43 years' service, died on February 7 after a long illness at the age of 74. He originally joined the Company's Rental Department, and in 1903 when the late Sir Francis (then Mr.) Goodenough was appointed Chief Inspector, Mr. Henwood was transferred to him as Assistant Senior Clerk. Until the retirement of Sir Francis in 1932, Mr. Henwood worked in close association with him. In his later years with the Company, Mr. Henwood was responsible for keeping in touch with public officials and members of the hotel and catering trades. He knew personally nearly every hotel manager and chef in the principal London hotels. He was a Vice-President and Trustee of the Food and Cookery Association, and served on many committees in the hotel and catering worlds.

MR. JAMES H. WILSON, Chairman of Evered & Co., Ltd., Smethwick, died at his home at Church Stretton on February 9 at the age of 77. He was born at Golds Hill, West Bromwich, in 1876, and commenced his business career in the iron trade in 1895. In 1903 he took control of James Clews & Sons and in 1919 merged that Company with Evered & Co., Ltd., and acted as Managing Director until 1942 when he relinquished that position to become Chairman. A man of wide activities, Mr. Wilson was a J.P. for the County Borough of Smethwick and Chairman for several years of the Smethwick Conservative Association. He was a member of many associations, including the Brass and Copper Tube Association, Cold Rolled Brass and Copper Association, and Non-Ferrous Metals Association, and was instrumental in forming the Metallic Bedsteads Association. He leaves a widow and seven children, of whom the second son, Mr. A. H. Wilson, is now Managing Director of Evered & Co., Ltd.

LADY GOODENOUGH, widow of Sir Francis Goodenough, C.B.E., died at her home in London on February 4. Sir Francis, it will be remembered, died in 1940 at the age of 67. He was Chairman of the British Commercial Gas Association for a number of years, and was a leading personality in the gas industry. He spent many years with the Gas Light and Coke Company, of which he was Comptroller of Gas Sales, and made gas salesmanship one of his main concerns.

Diary

Feb. 18.—EASTERN SECTION, I.G.E.: 'Rehabilitation of the Mablethorpe Distribution System after the Floods,' J. W. Wilson, East Midlands Gas Board; 'The Construction of a Prestressed Concrete Gasholder Tank at Cromer.' E. Williams, Eastern Gas Board, 17, Grosvenor Crescent, London, S.W.1, 2.30 p.m.

Feb. 19.—MIDLAND SECTION, I.G.E.: Discussion on 'Anglo-American Productivity Team Report,' introduced by A. G. Higgins, Assistant Secretary, I.G.E., and J. A. Hepworth, Deputy Chief Engineer, North Thames Gas Board. Queen's Hotel, Birmingham, 2.15 p.m.

Feb. 20. — MANCHESTER JUNIORS: Annual Dinner, Lyme Hall, Disley, Cheshire.

Feb. 23.—INSTITUTE OF FUEL: 'Carbonisation of Blends of Coal to Produce Metallurgical Coke,' by H. Bardgett. Institution of Mechanical Engineers, Storey's Gate, London, S.W.1. 5.30 p.m.

Feb. 24.—WESTERN JUNIORS: Visit to Norton Hill Colliery, Midsomer Norton, 2.30 p.m.

Feb. 24.—SCOTTISH G.C.C.: 26, Drumsheugh Gardens, Edinburgh. 11.30 a.m.

Feb. 25.—NORTH THAMES G.C.C.: Westminster City Hall, Charing Cross Road, London, W.C.2.

Feb. 27.—MIDLAND JUNIORS: Annual Dinner at Dudley.

Feb. 27.—YORKSHIRE JUNIORS: Short Paper Day: 'Works,' R. Mason (Huddersfield); 'Industrial,' N. Walker (Elland); "Distribution,' E. Birkett (York). At Doncaster.

March 2.—MIDLAND JUNIORS: 'Underground Gasification,' G. Hart. Staff Messroom, Council House, Birmingham.

March 2. — SOUTH EASTERN G.C.C.: Caxton Hall, Westminster, 11 a.m.

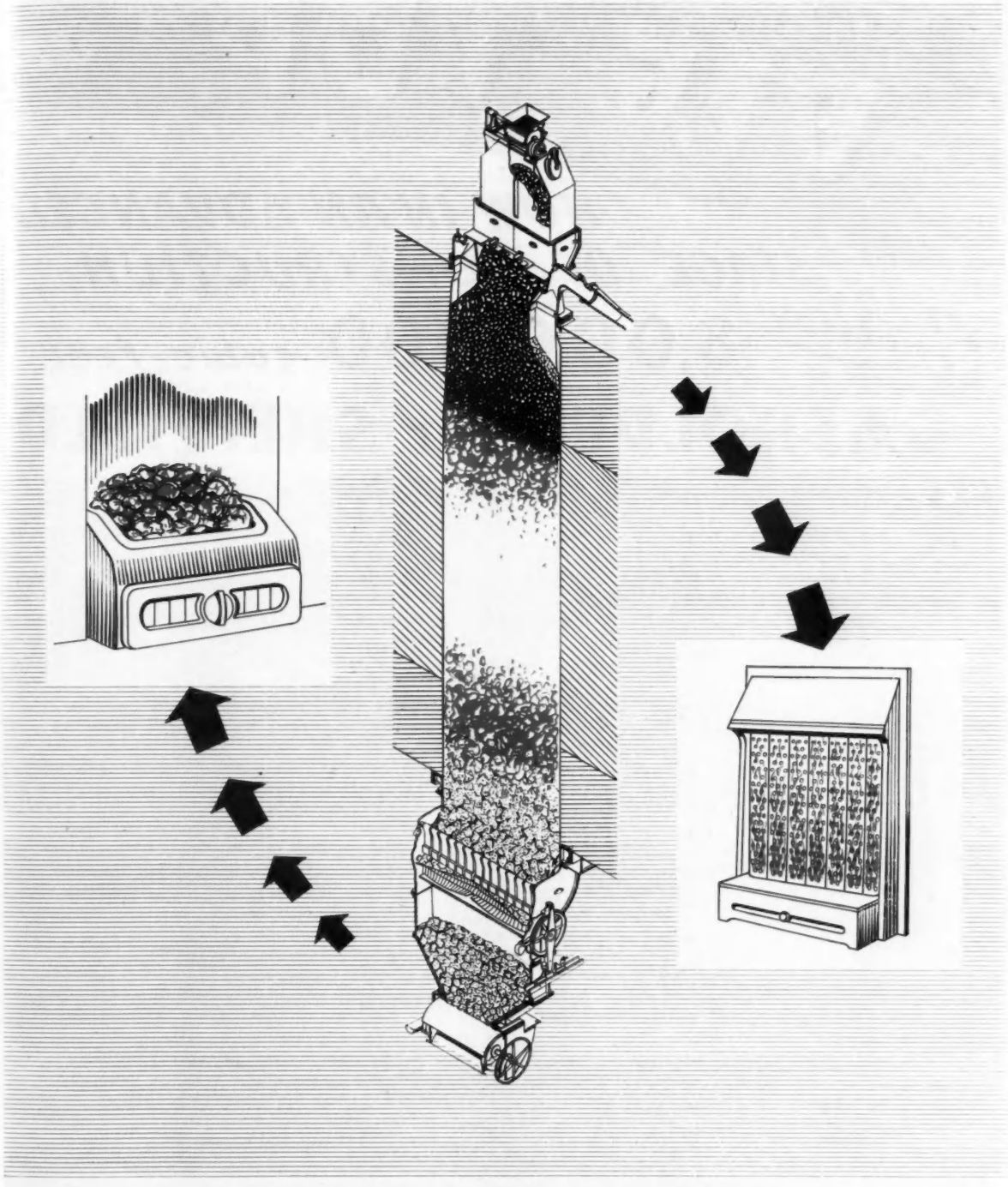
Mrach 2.—EAST MIDLANDS G.C.C.: Victoria Station Hotel, Nottingham. 11.30 a.m.

March 2-27.—IDEAL HOME EXHIBITION. Olympia. Gas Council Exhibit.

March 3.—SOUTH WESTERN G.C.C.: 34, Bridge Street, Taunton, 11 a.m.

March 3.—SOUTHERN G.C.C.: Social Welfare Club Room, Gasworks, Reading.

March 6.—SCOTTISH JUNIORS: Joint Meeting of Eastern and Western Districts at Glasgow. Paper by W. K. Hutchison, Chairman, South Eastern Gas Board.



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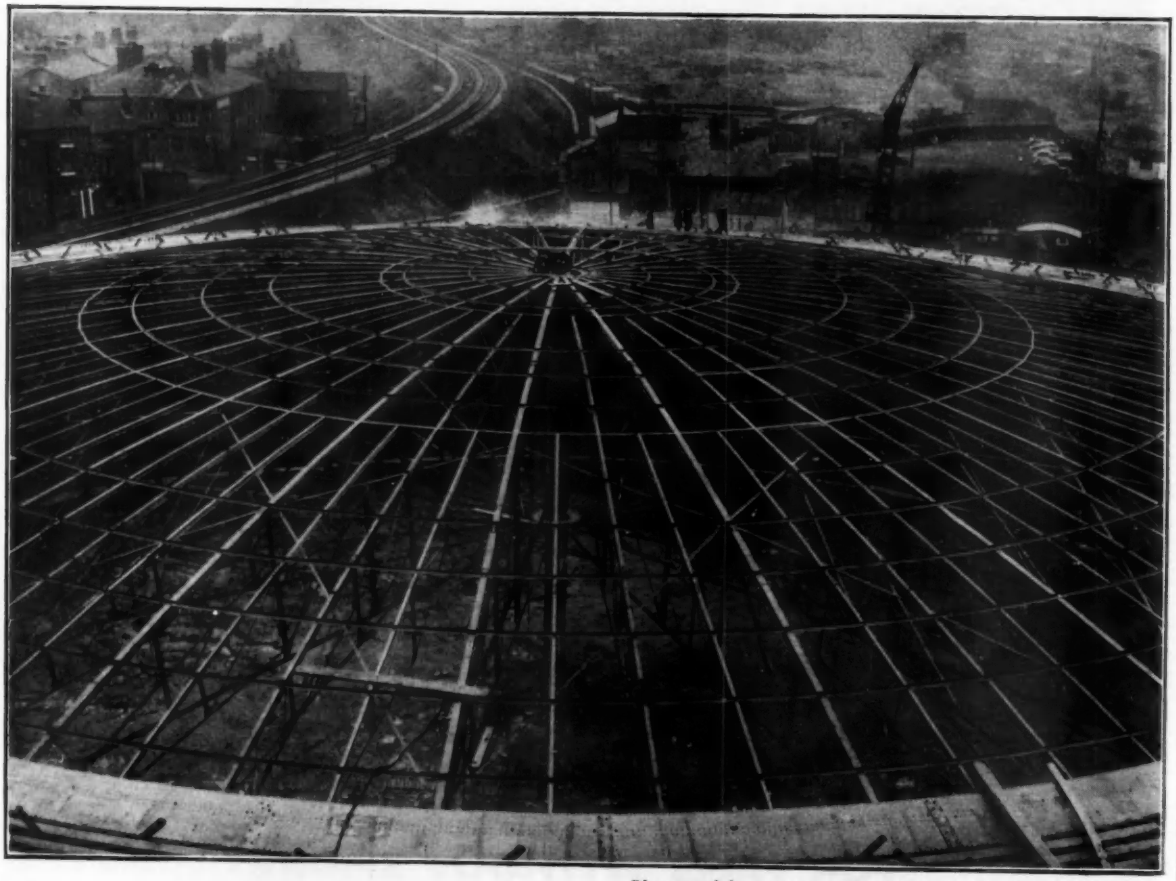

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Consultative Council Meetings

NORTHERN

Discounts Discontinued

Alderman Joseph Hoy, Chairman of the Northern Gas Consultative Council, reported at the January meeting of the Council in Newcastle that differences of opinion had been expressed at meetings of the Carlisle, Tees-side and Darlington Consumer Committees over the wisdom of the Northern Gas Board in discontinuing discount 'instead of facing up to economic reality and increasing the price of gas.'

Alderman Hoy said, 'This will remain a difficult question for some time, at least until the full effects of the recent increases in wages of gas workers are assessed and the possible further increase in the price of coal—two important factors which both the Board and the Council will be called upon to consider in the near future. I am afraid that further increases in the price of gas may mean that the industry will find it more difficult to compete with oil and electricity in the industrial field.'

It was pointed out by Alderman H. N. Sutcliffe that gas consumers should be wary before they transferred from gas to oil. He had installed a black oil plant which had cost several thousands of pounds at a time when black oil was 5d. per gal. In five years, however, the price had risen to 1s. 2d. per gal. It was a question whether it was better to be at the mercy of the Gas Board or of the petrol companies which had the field to themselves, he added.

Mr. R. C. Thompson said that the relative cost of heating from an industrial point of view was 5% oil and 7% gas. If some arrangement could be made whereby fuel consumption could be grouped the price of gas in relation to oil would be more favourable.

Fish fryers in North Yorkshire, Tees-side and Middlesbrough protested to the Council over what they considered to be the high price for gas. Alderman Hoy said that he had interviewed a deputation from the Cleveland and South Durham Fish Fryers' Association when representatives pointed out that as substantial users they felt the price for gas was too high and the loss of discount had further increased the cost. They also drew attention to the fact that they were now charged rents for meters which varied from 14s. to 32s. 10d. a quarter. If domestic users could have them free then why not the fish fryers, was their contention. The secretary of the Association, continued Alderman Hoy, had quoted the Wales Gas Board, which gave a reduction in price after the first 45 therms had been used. Another point was that prior to the last war they also had free maintenance in the form of inspection and cleaning of valves which was not done now.

Alderman Hoy said that he had pointed out to the deputation that increases in the price of gas as compared with increases in the prices of other commodities used by the fish fryers were very favourable indeed. So far as a concession in meter rents was concerned, the deputation was told that by giving such a concession the Board would lose a considerable amount of money which would have to be recovered from some other source. The deputation intended to report back to the Association. Alderman L. Taylor said he felt that some of the members of the deputation must have been talking with their tongue in their cheek as areas in Cleveland were enjoying gas which was no dearer than it was before nationalisation.

In connection with the appointment of consumer committees, the suggestion was put forward by Alderman A. A. Rennie that nominations should be sought from local authority associations rather than individual authorities. It was agreed to bear this suggestion in mind when appointments are next made.

After four years, as a member of the Council, the resignation was received with regret of Mr. R. N. Carr, of Carlisle, on health grounds. His son, Mr. D. N. Carr, is one of the four new appointments made by the Minister of Fuel to the Council.

WEST MIDLANDS

Mr. Diamond on an Alarming Position

The price structure in the West Midlands was the subject of a statement at a meeting of the Gas Consultative Council at Birmingham on February 1 under the chairmanship of Alderman W. H. Malcolm (Coventry).

Mr. G. le B. Diamond, Chairman of the Gas Board, told the Council that requests had been received for a statement on the position in the area. Following increases in labour and various commodity costs, a substantial increase in the cost of coal took place in March, 1953. In all, no less than £2,055,000 per annum was added to the Board's operating costs. The Board had given an undertaking that the working of the uniform tariff principles adopted in March, 1952, would be most carefully examined after a year's experience and this examination duly took place.

As a result, it was decided that the price structure should be made more flexible in order to reflect costs more accurately and four extra price blocks were accordingly introduced. In many instances, these had been of benefit to commercial and smaller industrial users. It was also decided to reduce the top price in 19 districts. It was impossible not to reflect part of the increased costs and, with the concurrence of the Consultative Council, it had been decided to add to gas prices £800,000 and to coke prices £330,000 in a full year, and to absorb the remaining £925,000 by utilisation of the accumulated balance, by achieving higher efficiencies and effecting rigid economies.

In taking this decision it was known that the current year's accounts were likely to be in deficit but, given freedom from new burdens imposed on the Board, it was hoped that the finances would be in balance in 1954-55.

As the request for information arose from a decision of the East Midlands Board, it should be explained that, in March, 1953, gas prices were increased in that area by 5% and that the concessions now announced would cost £160,000 per annum out of a gas revenue of over £13 mill. Nearly one-half of the gas supplies in the East Midlands were derived from coke ovens and increasing supplies from coke ovens situated in the East Midlands were becoming available. The circumstances of the two Boards were dissimilar and all practicable concessions were embodied in the current tariffs.

It was also stated that the award of 1½d. per hour to gas workers would involve an additional cost of £110,000. The price of coke, however, had been raised and would bring in another £18,000 to the Board's revenue per annum. Additional burdens seemed likely to arise from increases in miners' wages and higher freight charges.

The Chairman said the position was very alarming.

On the question of the allocation of North Staffs coal to outside areas, with the result that other coal had to be brought in, involving additional cost, Mr. R. A. Maddock (Stoke-on-Trent) said they had met representatives of the National Coal Board, but they did not get very far. He stressed that they were going to keep on with the fight until they got satisfaction and if necessary they would take it to the House of Commons.

Dealer Co-operation

Mr. Diamond said the Board had established a dealer scheme whereby certain selected dealers—two in each Division—were invited to sell gas apparatus at standard prices shown in the Board's showrooms. Certain dealers had accepted the suggestion. It was hoped this would provide additional facilities and would be useful particularly where showrooms were not always completely available to consumers.

He mentioned that during the previous week the sudden change in the weather had led to abnormal sales of gas and all time records had been established throughout the Board's area. In Birmingham 748 mill. cu.ft. of gas was sent out in the week ended January 30. That was 18 mill. cu.ft. more than in any previous week on record. At other places all-time records were set up, including Stoke-on-Trent, Coventry, Smethwick, and Leamington, and in fact at all the largest towns.

Alderman J. H. Lewis said the Board should be congratulated on an organisation which was found capable of meeting the huge demand.

Mond Gas Deputation

A deputation was received on behalf of a number of firms in the Midlands using Mond gas. It included Mr. C. Nelson (F. H. Lloyd and Co., Ltd.); Mr. F. Coe (Hale & Hale, Tipton); Mr. G. Plant and Mr. G. S. Rowley (Horseley Bridge and Thomas Piggott, Ltd.); Mr. F. Smith (Galvo Wire Netting, Ltd.).

Mr. C. Nelson, in presenting the case for the deputation, said the purpose was to bring to the notice of the Consultative Council the present uneconomic

price of Mond gas. The deputation was a small one but they represented about 20 Mond gas consumers. The price of town gas in 1938 was 6d. per therm compared with Mond gas at 3.2d. per therm, a price differential of 53%. Today the price of town gas was 11.135d. per therm and Mond gas 12.656d. per therm. The differential had practically vanished. Town gas price had increased by 119% whereas Mond gas had increased 295%.

To quote another consumer's figure, the increase on Mond gas from 1946 to 1953 was 96.5% with a corresponding increase in town gas of 52.5%. The town gas consumption in this case was small and the difference would be more marked if the calculation was based on using the same quantity of town gas as Mond gas.

Furnaces burning Mond gas were more expensive to build; the gas was dirty and needed considerable maintenance in keeping mains, burners, etc., clean; and even on most modern furnaces it was difficult to prevent obnoxious fumes, necessitating in some cases, fume extraction. The price ratio between Mond gas and town gas should be related, therefore, to the calorific ratio. At present the prices were almost equal.

Cheap Mond gas had induced Midland manufacturers to install Mond gas burning equipment. His own company in 1948 embarked on a development programme of building four heat treatment furnaces and six mould and core stoves based on the use of Mond gas, the consumption required being approximately 170,000 cu.ft. per hour. That development programme was only just nearing completion and during that time the price of Mond gas had risen by approximately 75%.

Under private enterprise the supplies, services, and prices of Mond gas were attractive, and it was urged that if the nationalised Gas Board could not retain these conditions the Mond gas plant should be denationalised.

The Mond gas users had a case which must be answered quickly. It appeared that Mond gas production was in the hands of accountants who had no idea whatever of the use of the product and why it was used. They were not dealing with reality, and ultimately that would prove fatal to manufacturers and to the Gas Board. The price apparently was fixed by features which had nothing to do with its production. Mond gas was produced by private enterprise at economic costs, which produced dividends. The present management was either inefficient or subsidising something else.

Other members of the deputation spoke of the experiences of their firms in respect to the use and price of Mond gas. Emphasis was placed on the adverse effect caused in the export market by the increased cost.

Mr. E. Coupland (Chief Engineer, Rubery Owen & Co., Ltd.), as a member of the Council, supported Mr. Nelson's statement on the need for lower charges as compared with town gas.

The Chairman said they had heard one side and the matter would be remitted to the Board for a report so that they might hear the other side.

The deputation asked that the matter should be dealt with as urgently as possible and it was suggested that if necessary a special meeting of the Council should be called.

WALES

Twelve-Year Plan

The Wales Gas Consultative Council, at a meeting at Cardiff on January 22, considered the Gas Board's report on probable developments during the next 12 years. The proposals deal with the three main geographical divisions of Wales—South Wales (covered by the South Wales grid which is in turn made up of the Eastern section, the Western section and Pembrokeshire), North Wales (covered by the North Wales grid) and Mid-Wales.

The Eastern section of the South Wales grid will extend from Monmouth to Llantrisant and will receive its supplies from coke ovens of the National Coal Board, Guest, Keen, Baldwins, Ltd., and British Benzole and Coal Distillation, Ltd., in addition to the Board's own plants at Pontypool, Cardiff, and other undertakings. Allowance has also been made for gas supplies from the projected N.C.B. coke ovens at Cwm. When complete the Eastern section will consist of approximately 165 miles of main, of which 112 miles have been laid. It is expected that the major part of this section will have been completed by 1956-57.

The Western section will initially extend from Bridgend to Carmarthen and receive its gas supplies from coke ovens of the Steel Company of Wales at Port Talbot, and of the National Coal Board at Tondu, together with supplies from the Board's undertakings at Neath, Swansea, Port Talbot, and elsewhere. When complete the section will consist of approximately 89 miles of mains, of which over 50 miles have been laid; the remainder are expected to be completed by the end of 1956.

In addition to main laying, work is well advanced on the first section of the major extension of the Aberavon works where coke oven gas is purified and compressed. The extensions at Aberavon include the erection of two C.W.G. plants of 3 mill. cu.ft. capacity per day, together with purifiers, a gasholder, and compressors. It is expected that this project will be substantially completed by the end of 1955. These developments will enable the Board to deal with the considerably greater quantities of gas available from the Steel Company of Wales, and other sources. Provision has also been made for approximately 20 miles of main to be laid to connect the Eastern and Western sections of the South Wales grid, thus forming one major scheme which will enable interchange of gas supplies to be made and to provide greater security of supplies.

A further proposal was to extend the Western section from Carmarthen into Pembrokeshire to supply Tenby, Pembroke, Neyland, Milford Haven, and Haverfordwest. No constructional work has yet been carried out on this project which is programmed to be completed by the end of 1957.

The North Wales grid will extend from Llangollen in the east to Caernarvon in the west and will receive its supplies from coke ovens at Shotton; in the form of methane from the N.C.B. colliery at Point of Ayr; and from the Board's new works at Wrexham. The grid will involve the laying of 115 miles of main, of which 32 miles have been laid; and it is expected that all mainlaying work will be completed by the end of 1956. The necessary gas treatment stations at Point of Ayr and Shotton are programmed for completion by the autumn of 1955. No decision has yet been taken on a possible extension of the North Wales grid to supply a further eight undertakings by laying an additional 89 miles of main, but the possibility of such an extension has been included in the programme and if proceeded with is expected to be completed by 1960.

Proposals for the smaller isolated undertakings in Mid-Wales include the provision at these stations of liquefied petroleum gases and/or other new methods of gas supplies. Provision is also made for the laying of main pipes and service pipes to carry supplies to new housing sites and to new localities.

The total capital expenditure involved up to and including 1965 is estimated at £11,495,000.

Submitting the three main schemes to the Council for approval, Mr. W. T. Hird, distribution engineer to the Wales Board, explained that the North Wales scheme resulted from a contract with John Summers & Sons, Shotton, for a supply of 4 mill. cu.ft. The daily quantity to be taken might at the Board's request be reduced to 60% in the summer and 70% in the winter of the contract quantity. The scheme provided for unpurified gas to be delivered to the Board's purifier and compressor station.

Supplies of Methane

From the Point of Ayr colliery the Board will receive a minimum supply of 600,000 cu.ft. of methane per day, which can be reformed to provide the equivalent of 1 mill. cu.ft. of coal gas. The new carbonisation plant at Maelor would produce 2½-2¾ mill. cu.ft. of coal gas per day. 'Coke oven gas is expected to be available from Shotton by the end of 1955,' Mr. Bird went on, 'and providing the methane treatment plant at Point of Ayr and the purifier and compressor station at Shotton are then completed the gas available could be a maximum of 11 mill. cu.ft. per day and a minimum of 5.25 mill. cu.ft. per day.' The combined total of present requirements of 31 undertakings in North Wales was 8¼ mill. cu.ft. on a maximum day which was considerably less than the maximum availability.

The system of mains proposed was the most economic of mains sizes and pressures.

The Board had realised that without a grid system the North Wales undertakings would not be in a position either to maintain their present supply position or to meet substantial increased demands for gas without considerable capital expenditure. The estimated expenditure of the scheme was £1,153,890 and the Board was satisfied that the implementation of the scheme would effect economies and would provide for future maintenance and development of gas supplies in the North Wales area for domestic, industrial and commercial purposes.

The development of the Western section resulted from an agreement with the Steel Company of Wales for a supply of coke oven gas, with the Board undertaking to transport 150,000 cu.ft. per hour of coke oven gas; and the proposed extensions at Aberavon were designed to handle this.

An essential part of the scheme was the provision of a main, interlinking the Western and Eastern sections of the grid.

This main was designed to make possible the transmission of large volumes of gas in either direction and would enable either section to provide an emergency supply to the other in the event of plant breakdown or other emergency. It would also make possible a balance of supply and demand over the whole South Wales Grid area.

Pembrokeshire Extension

The estimated capital cost of the whole scheme was £1,310,338. Referring to the proposed extension into Pembrokeshire, Mr. Hird said the existing production of gas by four undertakings was 276,116,000 cu. ft. in 1953. At each of the four undertakings there were items of carbonising or ancillary plant which were either under capacity for present demands or in need of major repairs. Stop-end horizontal retort benches at Tenby and Haverfordwest entailed working conditions which it was the Board's constant endeavour to eliminate. Milford Haven works was congested and unsuitable for expansion and Pembroke was the only works which lent itself to expansion. Here, however, any increase of carbonising plant to meet the needs of the other three undertakings would entail the replacement of existing wet and dry purification plant by units of larger capacity.

Under the adopted scheme some 56,000 yds. of 6 in. main would be laid at Pembroke with a 9,000 yd. 4-in. branch to supply Tenby and a further 23,000 yd. 4-in. branch to supply Milford Haven, Neyland, and Haverfordwest. It was proposed that all mains west of Llanelly should be laid with welded steel pipes, capable of standing considerable pressure. The system would be able to transmit a 100% increase in the present requirements of undertakings with a further margin in reserve. Additional capital expenditure was estimated at £308,366.

The Board enjoyed certain advantages in South Wales, Mr. Hird said, as there were available quantities of surplus coke oven gas from various sources. The use of this gas had enabled them to save 750,000 tons of coal a year since vesting day. All the schemes had been formulated to make economies at present day prices and consumption. 'By the time we have completed these schemes,' he said, 'we shall have increased the coal saving to well over 1 mill. tons a year.'

The three schemes, as outlined, were formally approved by the Council.

SOUTH EASTERN

Electricity Councils Restricted

Commander D. S. E. Thompson, Chairman of the South Eastern Electricity Consultative Council, told his opposite number on the South Eastern Gas Consultative Council in London recently that the electricity councils were not entitled to investigate generation costs. He was a guest speaker at a meeting of the South Eastern G.C.C. on February 2.

Commander Thompson said he was glad to have the opportunity of talking to the Council, because although he thought there was considerable diversity between the operation of gas and electricity consultative councils there were many problems common to both. The big difference dominating the picture was the fact that whenever there was any complaint about electricity costs, that industry's consultative councils were not entitled to investigate anything on the generation side. 'That is quite a big factor when you consider that generation covers two-thirds of the cost.' Gas consultative councils were not so restricted with regard to gas manufacture.

Wide Range of Tariffs

Referring to distribution, Commander Thompson thought the electricity and gas consultative councils were parallel in their tasks. 'To begin with,' he said, 'we are faced with the difficulties of the consumer in exactly the same way that you are. In the area of the South Eastern Electricity Board we had something over 50 different tariffs at vesting date. These tariffs were so widely different that by no stretch of the imagination could you gradually change one into another.'

It was because of that change-over which had been taking place for the past five years that his own Council had reached the conclusion that its function was consultative in character and not consumer representative. That was important because the Board now went to the Consultative Council with its problems and said: 'Now, this is the conundrum, will you consider it and let us have your views as to how it should be resolved.' The Board had done that with regard to the actual charges which were to be made, the basis of the charges, and to the provision of new connections, particularly when it came to rural development.

Commander Thompson added that it was a matter of major importance whether a new supply should be taken by route A or route B, because the people along those routes were going to be greatly affected by the decision so that the action was really consultative.

Concerning public relations, he said that for the first few years it was felt that nobody really knew of the Council's existence. 'We discussed all sorts of ways of getting ourselves known, including the posting of notices in all the electricity showrooms. And then, within the last six months, a change came about.' People suddenly realised that the Council existed, and a great number of requests from public bodies had been received—from ratepayers' associations, women's organisations, rotary clubs, etc. —to talk to them about electricity. He was beginning to get just a little bothered as to whether the Council members and staff could use so much time visiting all the different organisations. Much as they would like to do so, there were physical limits to what could be undertaken.

Another difficulty Commander Thompson mentioned was one created by the publication of one or two articles in a publication known as *Day-by-Day*—a leaflet issued by a local authority. These had resulted in an embarrassing spate of letters asking for assistance. 'During this last week or so we have had literally hundreds of letters concerning the introduction of the new tariff for electricity.' This leaflet had produced a compeltely wrong impression in the mind of the individual as to the function of the consultative councils.

For example, it was a duty under the Electricity Act that consultative councils should show no discrimination between one class of consumer and another; it was also a duty that they should produce a standard tariff.

'Unfortunately, the impression has got abroad that we, as a consultative council, can require the Board to give special treatment to old age pensioners on the grounds of hardship. That is something quite outside our powers. Our boards say that we are not to give special treatment to either the vicarage or the old age pensioners, or whatever it may be. We cannot give cheap electricity after the style of the system to give cheap tobacco to old age pensioners.'

Gas 'Not Available'

It was decided that certain correspondence should be duplicated and circulated to the Council before the next meeting so that more thought could be given to important issues. One of the letters to be dealt with in this way came from a consumer addressed to Mrs. Rathbone, Deputy Chairman, complaining that his estate agent had informed him that the gas main would not be available to his own and 10 other households in Albany Close, Blackhills, Esher. The gas main was already in the road, about 30 yards from where he intended to build, and he and the other people who had purchased plots there would also prefer gas.

NORTH WESTERN

Cheaper Coal Wanted

The case put to the Minister of Fuel and Power in support of a call for cheaper coal for the gas industry was outlined by Alderman C. E. P. Stott, Chairman, at a meeting of the North Western Gas Consultative Council in Manchester on February 4. Following a campaign for cheaper coal for carbonising, in which it sought the support of other consultative councils throughout the country, the matter was placed on the agenda when chairmen and deputy chairmen of consultative councils met Mr. L. W. Joynson-Hicks, M.P., Parliamentary Secretary to the Minister of Fuel and Power, recently.

Reporting on the conference with the Parliamentary Secretary, Alderman Stott said that Mr. Joynson-Hicks had stated that observations would be welcomed, but the matter was one of policy and no statement could be made. The position now was that an official report on the meeting would be circulated and, he (Alderman Stott) did not want to anticipate that report. He had, however, some further criticisms but he would not make them until after the report had been given.

'Anæmic' Appeal

The Council asked the Gas Board to initiate a development policy in the domestic consumer field as a matter of priority. A resolution carried by the meeting declared that 'for some reason the North Western Gas Board's appeal to the domestic consumer is anæmic.' In a statement presented to the Council, the Chairman said that satisfied domestic consumers were a firm foundation for the structure of the industry, being the main body of consumers.

'It may be that the Board's efforts

have not yet borne effect or that the heritage of the Board in this field was singularly and exceptionally unhappy,' the statement continued. 'Compared with other areas, the domestic consumer in this area has the least use for gas. The domestic consumer nationally consumes 120 therms per annum and in this district the average is 109. To be 11 therms below the average is deplorable and more deplorable is the fact that the national average is low because this large area dilutes it. An average of 125 therms per annum is the minimum to be expected.'

The resolution approved by the Council for submission to the Gas Board argued that an increase of 15 therms per annum per consumer would have a 'decisive' effect on the Board's balance sheet. If other costs remained stable, the profit on present prices would be well over £2,000,000, it declared.

Consumers who are Liabilities

More than 180,000 domestic consumers in the area were a liability to the Board, but a policy fully satisfying the domestic consumer would help to diminish this number, the resolution added.

One of the chief points made by Council members in the discussion was that at the present time there is little inducement to domestic consumers to burn more gas. The tier-scheme as at present constructed was considered an obstacle to the expansion of domestic sales and the Council decided to urge the Gas Board to lower the primary block from 65 therms a quarter to 30 therms.

Alderman Stott told the meeting: 'A little bit more vigour on the part of the Gas Board in popularising the use of gas for domestic purposes would have very considerable repercussions on the price.'

Liaison with Architects

The need was for a more virile policy in pushing the sale of modern gas appliances for domestic use and he believed that more could be done in this direction by Board employees who came into contact with the general public.

The Council, which recently urged close liaison between gas boards and architects to secure the installation of gas-consuming appliances in new houses, has been assured by the Gas Board that 'the very closest contact' is being maintained with all architects and surveyors of local authorities, including County Councils.

In many parts of the area open coke grates or openable stoves were being installed in new houses. The difficulty was that the provision of these appliances did not ensure that coke was exclusively burned in them and this position would continue just so long as the sale of coke continued to be controlled, not so much from the point of view of the permitted quantity, but through the necessity that followed in its train to maintain a system of registration, Mr. S. G. Deavin, Board Secretary, stated in a letter presented to the Council.

Promising a further effort to ensure the closest liaison with architects and surveyors, Mr. Deavin said not only architects but builders, heating engineers and allied firms were on the mailing list of most gas undertakings and recently they had been sent catalogues and information sheets on gas and coke.

Balancing the Coal Budget

Mr. Gerald Nabarro on the Coming of Atomic Energy

The principal guest and speaker at the February lunch of the Coal Industry Society was Mr. Gerald Nabarro, M.P. for Kidderminster, Vice-Chairman of the Conservative Parliamentary Atomic Energy Committee and Joint Secretary of the Conservative Parliamentary Fuel and Power Committee. Mr. Nabarro was introduced by the President of the Society, Lord Hyndley, past-Chairman of the National Coal Board, and said he had been asked to speak on the very attractive and scintillating subject 'Can Britain's coal budget be balanced until atomic energy arrives?'

Dealing first with budgetary considerations he emphasised that any balance sheet in connection with coal supply today must have proper regard to the primary and fundamental importance of exporting coal; there was no export of the United Kingdom which was of such inestimable value to the Chancellor of the Exchequer as coal, for the simple reason that it represented 100% conversion value—*i.e.*, exported coal needed no corresponding import.

A Note of Approbation

As a qualifying note of approbation, he congratulated the National Coal Board on its achievement in 1953 in exporting 14 mill. tons of coal, in spite of all the vicissitudes of Britain's economy; that was 2 mill. tons more than in 1952 and 6 mill. more than in 1951. As business men we should be concerned with what was the market for coal abroad in 1953 and to what extent was that market unfulfilled during the year. The N.C.B. might say the export market for coal was of the order of 25 mill. tons; his view was that, had the coal been available, we could have sold abroad something of the order of 35 mill. tons. Thus, frustrated coal exports were of the order of 20 mill. tons, which represented in terms of foreign exchange more than £100 mill. In 1953 British industry was supplied with all the coal it wanted, though, sadly, it had wasted a great deal of it. That did not mean that it was supplied with coal of the right qualities or grades, or the correct calorific values for its manifold consuming purposes.

Annual Shortage

Broadly, the measure of the shortage of coal today was the 20 mill. tons for export and perhaps another 5 mill. tons on the domestic market, a total of 25 mill. tons per annum.

The future outlook for British coal was not as roseate as one would like. Production by British industry generally had been rising steadily. In 1953 the overall production, in volume, by British industry was 5% higher than in 1952, and 2½% higher than in the then record year 1951. Last year was the all time high record for British productivity; never before in the history of this country had so many men and women been gainfully employed; never before had wages been so high; never before had there been such vast purchasing power in the hands of the wage earners. That all added up to prosperity, which he believed was the result of the enlightened economic policy followed by the Government in the last two to three years.

If we were to survive as a first-class industrial nation we must ensure, by the policies enunciated by the Government, that production continued to rise each year by a minimum of 2½%, and probably it could rise as much as 5%.

All that brought an ever increasing demand for coal for British industry. When Lord Ridley, in the epic and enlightened report of his Committee, had put the shortage of coal in British industry generally by 1960 as high as 25 mill. tons a year, he was probably guilty of an under-estimate. If we continued to provide full employment in Britain and to maintain a steadily rising scale of production and of living and social standards we should require year by year more and more coal. It was Mr. Nabarro's view that by 1960, leaving out any contributions that might be made by atomic energy and other sources of power, the shortage of coal would be not less than 30 mill. tons a year.

Assuming those figures were correct, he went on to consider what contribution had to be made by the National Coal Board in increasing the production of coal year by year; and his remarks were made, not in criticism of the N.C.B., but as a blunt realisation of facts. In 1953 we had mined a total of 224 mill. tons of coal, and in the preceding year 225 mill. tons. Both those figures included 12 mill. tons of coal derived from opencast sites. His views about opencast coal production were known; it took from us valuable food-bearing land, and it should be regarded as a last ditch reserve. But in any event there would be a declining output of opencast coal year by year, for the great majority of the sites had now been worked.

Mr. Nabarro could foresee no very substantial increase of deep mine coal output during the next few years; there might be a few million extra tons a year, but at the present rate of progress and with the industry in its present condition, notwithstanding the investment in the pits of an average of £50 mill. per annum, he could not foresee that there would be a sufficiency of coal to meet the very great increase of demand that could be anticipated in the next decade.

Electricity Generation

As an example of a great industry which was voracious in its demands for more and more coal each year he quoted the publicly owned electricity generating industry. In 1953 it had used 35 mill. tons. There was a carefully mapped out expansion programme for the next 10 years, during which an average of 1,500 megawatts (1,500,000 kilowatts) of generating capacity would be added each year. It was inherent in that situation that for electricity generation alone by 1961 there would be needed 15 mill. tons more coal per annum, making a total consumption of 50 mill. tons per annum in that industry. There was also the increasing demand of the steel industry year by year.

Many of his colleagues in the House of Commons had devoted a good deal of time and energy to trying to impress, not only on both Houses of Parliament, but also on the consuming public, the importance of realising the primary and fundamental value of coal today and the importance of using it more efficiently than in bygone years. In that connection, and without being derogatory to other such organisations, he referred to the work of the Coal Utilisation Council in many fields and in all parts of the United Kingdom in trying to promote a greater awareness of the difficulties of our fuel and power position. He would like to see the C.U.C. grow more rapidly than it had done in the last few years.

Although substantial progress had been made in fuel efficiency matters, there was still not enough effort by British industry as a whole. He mentioned, for instance, boiler house practice in some industries, where too many unskilled boiler men were wasting as much coal in a day as a miner could get up from the pit. An important matter in industry today was to teach young engineers and fitters the importance of the correct use of steam; all engaged in any branch of the coal industry should do all they could to encourage young men to take a greater interest in that vital factor and ensure more effective training schemes.

Productivity Report

Next, he drew attention to the report of the team of British experts which had visited the United States, led by Mr. W. L. Boon, to study fuel conservation, under the Anglo-American Productivity Council. It had drawn attention again to the extraordinary lack in British industry generally of the application of the principles of combined heat and electricity generation schemes through the medium of back pressure turbines. From that he pointed to the fact that in towns such as Hamburg and Charlottenburg, which were rapidly approaching the state of complete re-building, the Germans were not installing electric power houses of the type used in this country, but were providing power houses with back pressure turbines and would use a large part of the waste steam for elaborate district heating schemes (thereby eliminating the use of many auxiliary forms of fuel consumption in the homes) which led to a trebling of the efficiency with which coal was being used.

A National Policy

There was a great conflict of opinion as to whether it was desirable in this country, now that coal and gas and electricity were nationalised, that the Minister of Fuel and Power should exercise his statutory responsibilities and endeavour to evolve an overall fuel and power policy. Those who advocated that that should be done—and Mr. Nabarro was one of them—felt that the coal position was sufficiently difficult, if not critical, to justify central government guidance through the policies of the nationalised industries on the use of coal and coal products such as gas and electricity. It would bring in its train a certain degree of persuasion or coercion, though not compulsion. It would involve asking local authorities and others to employ a certain type of fuel or power for particular units, but it would conserve large quantities of coal. The opposing view was that we should not interfere with the right of the consumer to decide for himself what he should use. The Government at present took the second view; he hoped to be able to persuade them that that policy would not lead to the maximum conservation of coal.

Coming to the use of atomic energy, he said he was not one of those who believed that 30-40 years would elapse before we could put it to useful purposes. He hoped he was not unduly sanguine in expressing the view that long before that Britain would be producing substantial quantities of electric power without the use of coal or of water power, but as the result of nuclear fission. He quoted the cogent statement of the White Paper on the subject, that 'the most important step taken by man in the mastery of nature since the discovery of fire is the application of nuclear fission.' Hard on top of that White Paper came the formal announcement in the House of Commons that the construction of the first atomic power station in Britain was well advanced. It was a big one, of 60,000 kilowatts, at Sellafield; it was a large scale experiment. A few days ago it was disclosed that we were building up a great new industry in atomic energy, which had absorbed tens of millions of public money, that there were factories already established and working at Capenhurst, Risley, Windscale and Springfields, the brain and the nerve centre being the research establishment at Harwell. Progress was much more rapid than many people realised.

The Government must retain monopoly power in the production of fissionable materials. But there the monopoly should end. In research and in the development of atomic power for peaceful purposes, in techniques and the training of staff, in the production, distribution and sale of radioactive isotopes for manifold peaceful purposes, the Atomic Energy Corporation should collaborate on the widest possible scale with private industry and the universities, using the wealth of talent there available. It would be a disaster if the Corporation became just another dreary State monopoly. What was essential was a State Corporation manufacturing the fissionable material and British industry in general, with all its vigour, enterprise and capacity, manufacturing the plants, applying the techniques, producing the power and —what would be of inestimable value for our national economy—solving our internal problems of fuel and power and selling power plants to the world.

Thanks to Mr. Nabarro for his address were expressed by the Chairman, Mr. H. M. L. Berresford. He also welcomed the Society's many guests, of whom he mentioned Sir Harold Smith, the Chairman of the Gas Council (who will speak at the next luncheon), and Mr. J. S. Forrest, the Director-General of the House Coal Scheme.

Coal, Energy Basis 'For Generations'

Coal will continue to be the main fuel and energy basis of our economy for several generations to come, according to Sir Hubert Houldsworth, Chairman of the National Coal Board. He told the French Chamber of Commerce in Great Britain in London on February 9, that all coal resources in this country which were considered to be 'economically workable' would have to be worked sooner or later.

'Eventually,' he said, 'atomic energy will replace coal as the principal provider of energy. It may or it may not. But even if it does, a very long period of time is still bound to elapse before such a state of affairs will come to pass.' Even then, Sir Hubert added, large quantities of coal would still be needed as a raw material for carbonisation and chemical processes.

'We believe that the time during which coal will still be needed is quite long enough so that all coal deposits in this country that are known to be economically workable will, in fact, have to be worked,' he said. 'The danger is that atomic energy will not come soon enough to take the load off coal. I cannot see any danger that it will come too soon.'

Earlier, Sir Hubert pointed out that February 10 marked the first anniversary of the introduction of the Common Market for coal, iron ore, and scrap within the territory of the European Coal and Steel Community. He said that there were limits to what it would be wise for him to say on that unique event. 'As you all know, the European Coal and Steel Community has approached H.M. Government with certain proposals for a closer association between the Community and this country. So if ever a matter of far-reaching importance was *sub judice* it is this one.'

Calling the 30 years following the first world war, 'the 30 years crisis' in coal, Sir Hubert said that in Great Britain it was more severe and more destructive than it was on the Continent. 'But today, under nationalisation, we have the great advantage that we suffer in no way from a shortage of capital funds for investment,' he claimed. 'Whatever might be the British coal industry's relation to, or association with, the Coal and Steel Community, I do not think we should ever look to the Community for capital.'

Xylole Specifications

The National Benzole Association has issued corrigenda sheets for its 'Standard Specifications for Benzole and Allied Products, 1950.'

These affect only the xylole specifications, and the amendments have been necessitated as a result of new information that was put before the B.S.I. Technical Committee TPC/33 when it was considering these specifications for publication as British Standards.

These corrigenda sheets are being supplied to all purchasers of the 1950 edition of 'Standard Specifications,' and any reader who requires them should apply to the National Benzole Association (N.B.A., Ltd.), Wellington House, Buckingham Gate, S.W.1.

Coal Reserves held by North Western gas undertakings are higher than they were a year ago, it was reported at a meeting of the North West Regional Board for Industry in Manchester. Mr. Tom Eccles, Deputy Chairman of the Board, said gas undertakings in the region had stocks sufficient to last over 26 days compared with just over 21 days' supply at this time a year ago.

EFFICIENCIES

FROM A PAPER TO THE MANCHESTER DISTRICT JUNIOR ASSOCIATION OF GAS ENGINEERS ON JANUARY 30, 1954, BY

JOHN W. PASKIN

The keywords of a successful gas industry are efficiency, service, and economy. Without efficiency, service will be poor and economy mere parsimony. Therefore, efficiency must be our main study. It is proposed in this paper to consider its application to retort house control, which, from its inception in the early days of gas-making to the present day, offers a very wide field, both to the theorist and to the practical man.

A great deal of research work, experiment, and practical application of hard-won information has gone to the development of present-day methods. In the 'good old days,' the practice was to install the plant, start it up, and if the results were not all that could be desired they did at least add to the picturesque and robust vocabulary of the operators. There were certain rule-of-thumb methods which were applied as a matter of routine, and often the desired results were obtained. However, often they were not. These hit-or-miss practices had to give way to the pressure of modern demands.

Aim at 'Plus' Results

Retort house control should be taut, highly efficient, and scientifically applied. Modern plant is designed to produce a guaranteed quantity of products, and, given modern methods of maintenance and repair, skilled operation, and rigorous supervision, it can and does do all that is required of it. By the exercise of careful adjustment, attention to maintenance and judgment in operation, its production can be stepped up beyond the level for which it was originally designed. It is the achievement of these 'plus' results which should be the aim of every engineer responsible for the operation of retort houses.

It is proposed to take a typical works where there are in operation vertical retorts of designs recognised and accepted by the industry over many years, notably those of West's and Woodall-Duckham.

Much criticism can be made of low efficiencies over these past years and there is no doubt that much more will be put forward, but it must not be forgotten that there were many difficulties to contend with, quite apart from the plant itself. Labour troubles and materials in short supply alone made rough going over the many difficult war years.

Producers

Of whatever design, natural draught or atmospheric, pressurised, or modern mechanical type, the producer is an essential unit of the carbonising plant. Unless the producers are properly constructed and operated no amount of care can make the retort installation, or the gas undertaking, a complete success.

Mr. Paskin described each of these types and detailed the standard working instructions for each.

The original 'open' grate, or atmospheric producers, have been almost entirely superseded by the 'pressure' type, in which the primary air and steam are fed to the producer under pressure, the grate being enclosed by air-tight doors. Effective control of the operation is thus obtained and variations due to changes in barometric pressure and other atmospheric conditions are eliminated. There are two methods of supplying air and steam to the pressurised producer. One is by combined steam and air injectors; the other by a power-driven air-blower, with independent steam supply. Where several blower producers are supplying gas into a common flue, it is advantageous to incorporate a controller unit to maintain the gas pressure when one or more of the producers are shut-off for cleaning. These producers normally carry instruments which give a fair indication of the conditions obtaining at any given moment.

Other things being equal, high temperature of the producer gas is a sure sign of faulty producer practice. A high CO_2 content in producer gas is readily detectable in many settings by simply viewing the walls of the producer gas uptake, etc. High CO_2 content in the producer gas, together with high nitrogen content, indicates total oxidation of carbon to carbon dioxide, instead of partial oxidation to carbon monoxide. With an efficiently designed producer for a given load this trouble may be due to:—

(*a*) Shallow producer bed, due to a faulty recharging programme, or, in the case of horizontals without curtain arches, failure to level-off the bed.

(*b*) Leakage of air into the producer, through faulty linings and brickwork, from the secondary air flues of the generator.

(*c*) In settings with a common CO flue, leakages of air from empty producers through leaking dampers.

(*d*) Excessive pull on the producer, resulting in air leakage into the producer through stoppers or when changing lids, etc.

(*e*) Faulty clinkering, resulting in channelling or ratting—*i.e.*, uneven travel of air through the producer bed—and in some cases serious reductions in the volume of coke into the producer, due to undetected masses of clinker.

General Producer Practice

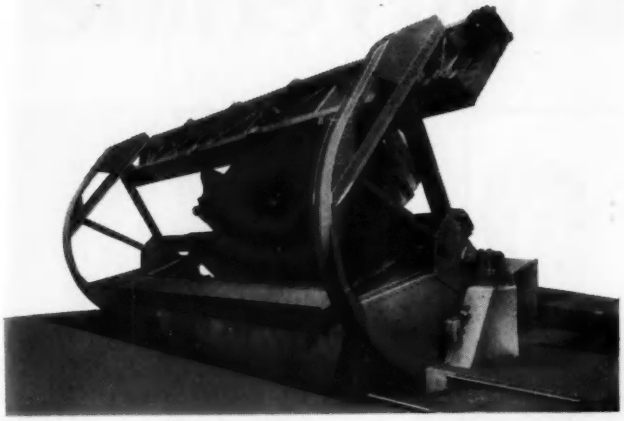
When the temperatures begin to fall on a setting the immediate reaction is often to increase damper openings, either at the chimney or producer gas intakes. This should never be done without first finding the pressure or pull conditions in the setting and comparing these with the condition normally carried. An analysis of producer gas, including nitrogen, should also be made. If an analysis is not immediately available the temperature of the producer flue is an excellent indicator of poor quality producer gas, which may be attributed to one or more of the causes mentioned. It should be noted that the temperatures of the gas leaving the setting, and the producer gas flues, will vary with the steam-coke ratio to the fire. But, for a given ratio, sudden rise in these temperatures is an excellent indicator of poor producer gas with high CO_2. It should be an easy matter to examine a producer quickly and systematically for the sources of trouble which have been listed.

Clinker trouble is probably one of the more common causes of poor producer gas practice. Too much attention cannot be given to producer cleaning. A common source of clinker trouble is failure to ash-out the pan. Dead ash left at the foot of the ramp forms a foundation on which clinker grows. For control of producer clinkering it is good policy to have a poker with welded cross pieces marking the distance between the step and the clean ramp. By this means growth of clinker on the ramp can be detected easily. As an alternative a piece of iron tubing can be inserted in the fire at various points and left for a short period. On withdrawal, inspection of the distance the colour has travelled will give the required information. Change of coal quality should be carefully noted and experience will dictate when trouble can be expected. The producer fires should be given extra supervision where necessary, and the fireman warned that extra clinker and ash may have to be removed.

Periods between clinkering should be as long as possible, without causing fall in the volume of producer gas made. Intermittent pricking-up of a producer between clinkering periods is an operation of debatable value and is best settled by actual experience. Cleaning of step-grate producers is a highly skilled job, and it is suggested that car-

(*Continued on p. 415*)

VERSATILITY IN DESIGN.....



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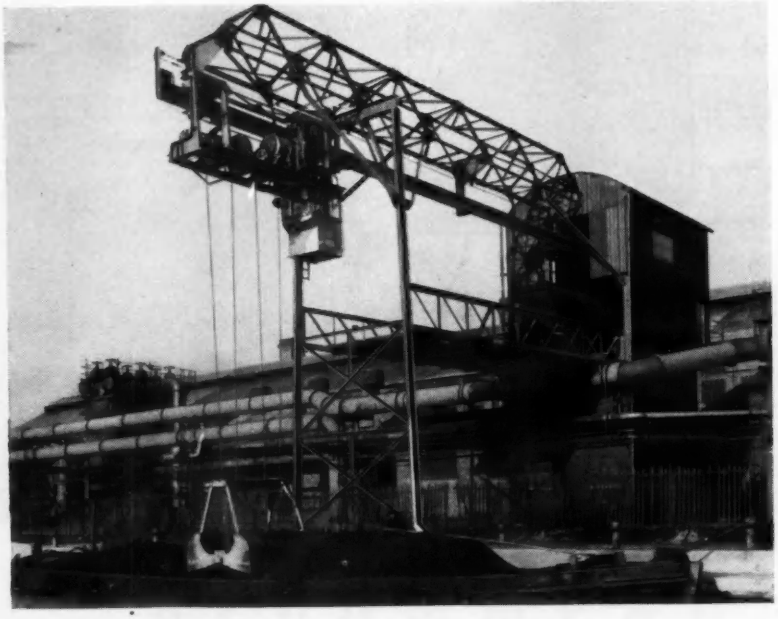

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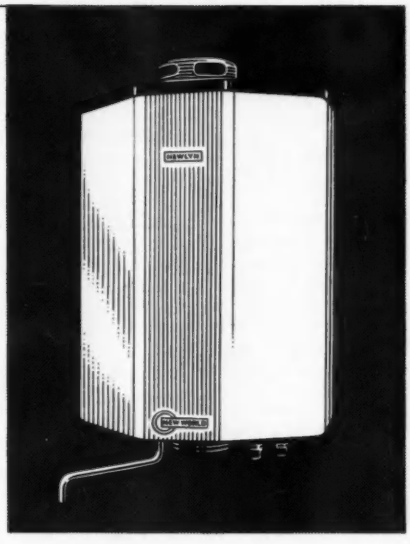

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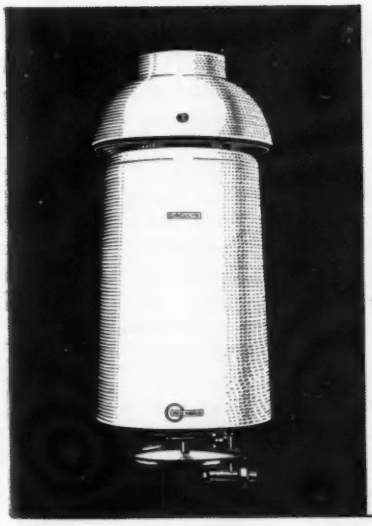

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bonising technicians should master this by actually performing the operation.

With continuous vertical retorts the steam-carbon ratio of step-grate producers should be kept as much below 0.5 as possible, with good fuel conditions and a blast saturation temperature below 55°C. It is unfortunate that admission of steam is so often expected to play a dual rôle —*i.e.*, to give the optimum temperature and inject the required amount of air into the producer. It is impossible to design a blower which meets both these requirements. The best that can be expected is a compromise which meets normal conditions. These are normally obtained by blowing-in the air by a fan controlled by the producer gas pressure and admitting steam to give the optimum blast temperature. Where, however, operation is confined to steam-blown producers, too much attention cannot be given to the cleaning of the venturis and the air ducts to the producers. Accumulation of moist coke dust reduces the efficiency of the venturis and, in consequence, the production of producer gas. It is a common error in such circumstances to increase at once the steam pressure to the venturis, and hence the blast temperature. Before this is done the cleanliness of the venturi system should be checked and attention given to any increased resistance of the firebed, due to faulty cleaning, excessively small fuel, etc. At times, dependent on circumstances, it may be necessary to feed a producer with a certain proportion of small fuel. When this necessity arises it is advisable to sandwich the small fuel between larger coke, rather than attempt to feed a mixture, with consequent uncontrolled segregation, uneven burning, and the risk of channelling. The unconsumed coke in the ashes and clinker from producers should be kept under close observation. Such unconsumed coke is often well over 40%, but with good practice on the step-grate producers it can be kept nearer to 30%. When increasing the proportion of small fuel to producers it is important to observe any increase of the carbon in the ashes.

The paper continued with descriptions of the Woodall-Duckham and Glover-West systems with the standard contractors' instructions for starting-up and operating.

General Operation

There are various factors to be considered in the operation of continuous vertical retorts, chief of which are fuel consumption, pressure conditions, steaming efficiency, temperatures, and the elimination of undesirable by-products. Fuel consumption is a matter of primary importance, and for obvious reasons must be kept to a minimum. Other factors are the accurate setting of secondary air controls and optimum throughput permissible by the type of coal used and the calorific value required of the gas which is to be produced. Heat insulation can materially affect the amount of fuel consumed. For this reason, attention should be given to the insulation of the outer walls of the setting, where heat can be lost by faulty workmanship. If these points are borne in mind, the operation of the setting will be satisfactory and the consumption of fuel maintained at an economic level.

At no part of the plant is careful attention more amply repaid than at the top of the retort. The rodding of a retort is not a skilled job, but there is a right and a wrong way. Systematic work intelligently applied at this point will ensure easy operation, satisfactory results, and freedom from trouble. It cannot be too forcibly impressed upon the stoker that it is of the greatest importance that the gasways from the retorts should be kept clear. Any neglect of this duty will tend to hinder the free passage of coal to the retorts, since any restriction of these gasways will give rise to the deposition of tar on the incoming coal, rendering it liable to stick at the inlet of the retort.

A definite pressure on the tops of the retorts must be maintained at all times, since pulling will rapidly lead to the formation of restrictive deposits. The correct pressure condition depends on the efficient operation of the retort house governor, which should be periodically inspected to ascertain that it is in proper working condition. In some cases, however, the retort house governor has been found unable to counteract irregular working of the exhausters. It is essential that the exhauster itself should be efficiently governed to take away the gas from the plant regularly and without excessive pulsation.

The swelling index of the fuel used is a valuable indication of steaming efficiency. An index figure of over seven will give less reaction and adversely affect the reactivity of the resulting coke. Coals with a swelling index above seven will tend to give trouble in coal travel in the retorts and steaming efficiency will be impaired. Coals with numbers of eight and nine are more sensitive to the rate of heating and less reactive to steaming. Coals with swelling numbers up to three generally produce a coke smaller in size than the original coal. As the swelling number rises from three to nine the percentage of breeze is reduced.

Dense, blocky coke is usually produced from highly swelling coals, a smaller, more fragile coke being produced when the feebly swelling or non-coking coals are carbonised. Irregular working of the coal charge in continuous vertical retorts, due to hanging or standing, inevitably leads to formation of more blocky coke, since, while this is occurring, the coal is being carbonised virtually under static conditions.

Low, or uneven, temperatures also lead to blocky coke in the retort, since, due to some, or all, of the coke not being properly burnt off, the natural fracturing of the coke along its shrinkage tissues is not completed. The coal throughput and the carbonising temperature affect the nature of the coke and determine to a large extent the amount of volatile matter in the final product. In normal gasworks practice it is usual to adjust the carbonising temperatures and coal throughput so that the volatile content of the coke does not exceed 1.5% to 2%.

Tar yields and their aliphatic content, and the yields of CH_4 and unsaturated hydrocarbons, are directly affected by the admission of steam and will rise with the amount of steam entering the retort. Reasonable admission of steam tends to prevent cracking, but excessive steaming is inadvisable and will result in lowering the hydrocarbon enrichment value.

One of the many troubles which can develop in the operation of these settings is the pitching-up of hydraulic mains. This is too often caused by over-steaming or over-pulling, but it is also found that the cause can lie in the liquor supply to the offtake pipes and also in collecting mains choked with tarry deposits. Temperatures in the collecting mains should be kept to normal, when these deposits will not accumulate and the trouble will be avoided. Another cause of pitching-up is a hanging retort. Where this is found, the retort should be turned off the main.

Where steaming efficiency shows signs of falling there are several points which can be considered in an effort to bring this to the desired value. The higher the temperature, with any given throughput, the higher will be the plastic zone and the greater the depth of hot coke, with consequent generation of a great heat-reserve for endothermic water gas reaction. The extent of the steaming zone must be very carefully controlled and is largely dependent on temperatures and the position of the plastic zone. The temperature of the coke in this zone must not be allowed to fall below 800°C.

Nitrogen in Retort House Gases

High nitrogen in retort house gas is a sure indication of loss of therms. If the excess nitrogen is associated with its atmospheric equivalent of oxygen the effect is merely one of dilution and will lower the total thermal yield, in so far as less (say, producer gas) diluent can be added. However, air added at this point is harmful in many other ways. It will tend to cause ascension pipe and foul main blockages and increase the oxygen absorption of the liquor. If the high nitrogen is due to drawing flue gas through cracks in the retorts, this will be indicated by a high CO_2 content of the gas. Providing the flue gas is free from excess air, the effect on thermal yield is again only one of dilution and a reduction in the amount of producer gas, etc., diluent which can be added. It often happens that air is drawn into the retort at the mouthpiece, and internal combustion of the gas occurs, result-

ing in a serious loss of therms, in addition to the limiting of the quantity of diluent. This internal combustion of coal gas is often a preferential combustion of hydrogen. Conditions in the retort offtake are often such as to bring about the preferential, probably catalytic, combustion of hydrogen.

Mr. Paskin showed that an increase in the nitrogen content of retort house gas from 5% to 8.8% resulted in a loss of 1.45 therms per ton. Too much stress cannot be placed on the necessity for putting retort house benches under excess pressure once each day and observing and recording leaks. If gas is escaping under excess pressure it is certain that some air is entering under normal working conditions —particularly during the later stages of carbonisation in horizontal and intermittent chambers—with invidious effect on thermal yield. During pressure tests, flues should be examined also for indications of leaking retorts.

If a retort bench is put to work in a tight condition, the first leak to develop is detectable and should be remedied before a second develops. If this practice is not followed the result may be months of hard work Do not, however, be discouraged. Rather, systematically and with determination, seek to exclude nitrogen. The success and value of your efforts will be reflected with gratifying results in the thermal yield. It is useless to take gas analyses, perform pressure tests, record results, and use these as an excuse for poor efficiency. All the testing in the world will be of no avail unless remedial action follows detection of faulty working.

Mr. Paskin set out a 'Fault Chart' in which observed faults are tabulated against possible cause.

(The paper was fully illustrated with graphs and standard drawings of settings and producers.)

ACCURACY OF GAS METERING

FROM A PAPER TO THE MIDLAND JUNIOR GAS ASSOCIATION, JANUARY 26, 1954, BY

A. E. MASON,

A.C.I.S., Superintendent, Meter Repair Shops, Birmingham Division, West Midlands Gas Board.

On nationalisation, the functions of examining and stamping consumers' meters were transferred to the Ministry of Fuel and Power. Area boards are now directing the meter policy to be adopted. The Ministry has pursued a progressive policy in organisation and standards. Many of the requirements under the 1920 Act have been adopted, but the Ministry has instituted additional regulations and methods, under powers granted by the Gas Act, 1948.

External Soundness

Among the directions is that the meter shall remain sound with an internal pressure of 5 in. W.G., or, with a high pressure meter, 1½ times the maximum pressure at which the meter is designed to work.

Five inches district pressure is fairly general in the Birmingham area, and probably in other areas too. At times, and under certain limited conditions, the district pressure may reach 7 in. It would seem that the regulations do not meet today's requirements, and that the Ministry should require a meter to be sounded at a pressure at least as high as the maximum district pressure.

The method adopted in the Lord Street shops is to sound meters at 40 in. pressure. The practice is not carried out because 40 in. pressure is considered necessary, but is done for the purpose of speeding-up the process.

Ten meters are simultaneously fitted to a testing rail and by the time the last one is connected, the first one has been under pressure long enough to show whether the water in the gauge has fallen, a pointer having been set to the original line. If lower pressures are used, sufficient time must elapse to allow the gauge to respond. What this period of time should be is not set out in the directions.

A rubber bung is used to seal the outlet pipe. The air pressure is obtained by means of a ¼ H.P. compressor. The motor is controlled by an automatic pressure-switch, cutting in and out to maintain the predetermined pressure. The testing rail enables meters to be sounded at 40 in. W.G. At 5 in. pressure is also led to the rail, to test for small volumes. The lower pressure is obtained by a Keith Blackman fan.

Registration of Small Volumes

In dry meter design it is impossible to have a perfectly sound seal between the surface of the valve grid and the surface of the grid cover. Small quantities of unmeasured gas will slip by and mix with the measured gas. The regulations provide a limit to the amount of this slip. At 5 in. inlet pressure, the meter must register

Registration rate is determined by the indicated capacity of the meter.

Capacity of Meter	Volume of air per hour to be passed through and to register	
	Minimum	Maximum
Not exceeding 120 cu. ft. per hour ..	¼ cu. ft.	1/30 of badged capacity or 2 cu. ft., whichever is the less.
Exceeding 120 cu. ft. per hour, not exceeding 1,000 cu. ft. per hour ..	2 cu. ft.	1/60 of badged capacity or 6 cu. ft., whichever is the less.
Exceeding 1,000 cu. ft. per hour, not exceeding 2,000 cu. ft. per hour ..	6 cu. ft.	10 cu. ft.
Exceeding 2,000 cu. ft. per hour ..	10 cu. ft.	15 cu. ft.

An examiner can set the meter working between the speeds mentioned, but the meter repair shop tester must work the meter at the minimum speed; otherwise he may find it rejected, should the examiner's test be at the minimum speed.

At Lord Street, this test is made immediately after the external soundness test has been completed. The 10 meters are set working at 5 in. pressure and fitted with the appropriate outlet restrictor to pass the desired volume.

Accuracy of Registration

A change has been made here which has allowed a little more tolerance of inaccuracy. First let us look at the regulations today:—

The examiner shall pass a volume of air from the meter through the test holder (or test meter) at an inlet pressure of 2 in. W.G. at the rate of the maximum capacity indicated on the meter, or to the operating limit of the holder (or test meter).

The meter shall work for one complete revolution of the test dial. If the revolution is less than 2 cu.ft., it shall continue for complete revolutions until at least 2 cu.ft. have passed.

The error shall be calculated as a percentage to the first decimal point.

Example:—

Test Dial Reading			Holder Reading
2 cu. ft.			1.97 cu. ft.
error	=	$\frac{0.03 \times 100\%}{1.97}$	= 1.52%

i.e., 1.5% fast.

If the meter is more than 2% fast or 3% slow the meter is *not* stamped.

If it is more than 1% fast and not more than 2% fast, or if it is more than 1.5% slow and not more than 3% slow, it is re-tested at a speed of 1/5th of its indicated capacity or 10 cu.ft., whichever is the greater, and it must not be more than 2% fast or 3% slow.

As an example, an I.G.E. D/I meter badged at 100 cu.ft.

per hour, 0.1 cu.ft. per revolution, if found to be registering 1.5% fast when working at 100 cu.ft. per hour, would be re-tested at 20 cu.ft. per hour.

Under pre-nationalisation regulations, irrespective of its error at indicated capacity—*i.e.*, 100 cu.ft. per hour—it could be re-tested at 100 times its revolution per hour (*i.e.*, 10 cu.ft. per hour).

The practice at Lord Street is to set every meter within 1% fast and 1.5% slow. However, should a meter show a varying result, it is tested at 1/5th its capacity.

Absorption of Pressure

A limit is placed on the amount of pressure lost between inlet and outlet when the meter is working. It is observed during the test for registration—that is, at 2 in. inlet pressure and when passing air at the capacity indicated on the meter. The absorption is considered as the mean of its greatest and least difference—*i.e.*,

Inlet 20 tenths		Outlet (varying between 15 and 17 tenths)
	mean =	16 tenths
∴ difference	=	4 tenths

From this, a deduction is allowed for the fall in pressure in the pipes connecting the inlet and outlet. If these are coupled together, by-passing the meter, and there is a fall of, say, one-tenth, the true meter absorption would be three-tenths.

Permissible Absorption Capacity of Meter	Maximum Absorption allowed
Not exceeding 5,000 cu. ft. per hour	5 tenths
Exceeding 5,000 cu. ft. per hour, but not exceeding 20,000 cu. ft. per hour	8 tenths
Exceeding 20,000 cu. ft. per hour	10 tenths

There has been a little easement here, as the 1920 regulation considered the maximum, not the mean, as the absorption difference.

Lord Street test holders are fitted with an inclined manometer for observing the pressures. This is a standard fitting now used by the Ministry of Fuel examining stations. The gauge reflects any impulse thrown by the meter. The gauge is used also by the examiner for the soundness test, and is more sensitive than the U gauge or the Kings gauge.

Pressure Oscillation

The tester records as the pressure oscillation, first, the difference between the highest and the lowest reading of the manometer, observed during the previous test. If it exceeds the permissible oscillation allowed, he disconnects the gauge, and connects the inlet of the gauge to the outlet of the meter, leaving the outlet of the gauge open. The oscillation must then be within the prescribed limits.

Capacity of Meter	Maximum Permissible Oscillation
Not exceeding 5,000 cu. ft. per hour	3 tenths
Exceeding 5,000 cu. ft. per hour	4 tenths

This is an entirely new regulation and has caused many of the older type of meters to be down-badged and even scrapped.

Practical Steps to Obtain Accuracy

Consumers' Meters—Dry Type: Accuracy is inherent in its design and in recent years much improvement has been made by meter manufacturers. Tangents can now be very finely adjusted; frictional resistances have been minimised; and adequate cross-section area of gasways has been provided, particularly in the dimensions of the valves, with minimum seal and opening and closing synchronised. The bearings and linkages are made of hard-wearing material; diaphragm leathers are carefully chosen and correctly dressed; and index gearing is precision cut.

The modern trend is for reduction in size of meter case, which has necessitated a considerable increase in speed. To obtain this, the valve port area has been correspondingly increased. The larger covers which are now used have a greater surface contact and frictional area, and are more inclined to become 'sticky.' The diaphragm, being smaller, has less driving power to overcome the inertia of the covers, with the result that there may be greater oscillation, particularly after use on the district. The driving force of an effective area of 6 in. diameter, created by the leathers in a modern domestic meter, is approximately 1.0 lb., whereas in the earlier design of similar hourly capacity, with an effective area of 7 in. diameter, the driving force was approximately 1.4 lb.

Greater oscillation causes a meter to register slow. To avoid this, manufacturers are turning to valve covers lighter in weight and to non-frictional material. Oscillation arises when only one leather is moving, which occurs momentarily each time a valve cover changes direction. At that moment the driving force is reduced 50%. A D/1 meter which is 0.1 cu.ft. per revolution, changes direction twice as many times as the 3-light case size, 0.2 cu.ft. per revolution.

Accuracy should be the fundamental aim, and so the question arises as to how far one should go in the quest for the smallest meter. However, as we are more concerned and more able to take practical steps only with meters under repair, our efforts are limited to correct setting of valves with diaphragm movement; trimming valve seals; renewing worn internal parts; and allowing correct quantiy of gas in the leather diaphragms. Particular attention should be given to fixing a meter of adequate capacity. An overworked meter may create a greater loss of pressure and register slow. It is very important to choose a position where temperature changes are avoided.

Testing Meters In Situ

Every endeavour is made to provide consumers with an accurate meter for measuring the amount of gas used. Unfortunately, a time may come when the accuracy is in dispute. Where possible, it is preferable to determine this *in situ*, rather than to risk disconnecting and transporting to the test bench. A meter may be passing unregistered gas through 'lifted' valve covers, and a shock in transport may reseat them; afterwards a completely different result would obtain.

In Birmingham, prior to the war, endeavours were made to keep meters reasonably accurate, and prevent disputes arising, by carrying out *in situ* tests methodically, according to size and age group. This becomes a major operation with approximately 350,000 consumers' meters on the district, varying in size from 30 cu.ft. to 150,000 cu.ft. per hour capacity. Although the opportunity has not yet arisen to recommence this work, it is considered very desirable.

The test meters used are of the self-emptying drain-type made in our own shops. The capacities are:—

5-lt	120 cu.ft. per hour
20-lt	250 ,,
100-lt	700 ,,

These are checked frequently and re-set to a test holder; the tangent is accessible, the top being hinged and padlocked. The self-emptying drain meter is built on the ordinary dry principle, but piston-type valves, situated underneath the diaphragm, are used. The valves stay in position, irrespective of uprightness of the meter, and are chosen as being more suitable for transporting.

A meter should be tested at its badged capacity or to the operating limit of the test meter at one-fifth its capacity; and at a small volume according to the table shown under testing regulations. On small meters a simple test is made with an Abbott Birks pocket tester. This consists of a rail of six governor burners, each burning 2 cu.ft. per hour, and on which one or all of the burners may be used.

Many of the larger industrial meters on the district have been provided with a testing plug on the outlet neck, to enable connection to be made to the test meter.

The Ministry of Fuel and Power now allows minor repairs to be carried out *in situ* on B and M and Connersville meters, where such repairs can in no way affect the accuracy of registration of the meter. The Ministry of Fuel and Power meter examiner must be present when the seal is broken, and he replaces it without requiring the meter to be re-tested. This concession has been found to be very useful in Birmingham.

The difference between gas registered by the total of all consumers' meters, and the works station meters, is included in the term unaccounted-for gas. As this is being considered more and more extensively, it stresses the need not only for obtaining accurate registration of consumers' meters, but also of works station meters. Inaccuracy of meters is only one of the factors to be taken into account, but it is a material factor.

In the West Midlands area, instructions have been given by the Board to have such meters tested each year. This has been done in Birmingham for many years past, and the daily 'make' corrected to the error found. The responsibility for testing and periodical examination is in the control of staff not concerned with the manufacture of gas on any of the works.

Testing Small Positive Station Meters

To check the accuracy of these meters, a 100-lt test meter is used, one having been previously verified against an 11 cu.ft. test bench holder, and having a revolution counter of 5 cu.ft. sub-divided to read accurately one-tenth cu.ft.

The test meter must be levelled and carefully water-lined. Gas is passed through the test meter, and then to the inlet of the meter which is under test. A pipe is run from the outlet of this meter to atmosphere, and the flow controlled by a cock. A thermometer is provided on the inlet and outlet of each meter and a pressure gauge on the inlet of each meter.

The gas cock to the test meter is opened and the outlet control cock closed. After the chambers of the drum have filled with gas and temperature equilibrium has been attained, the gas is turned off. Perfect soundness must be obtained before the test is commenced, ascertained by observing the pressure gauge. The meter is then set working at the test meter capacity, in this instance 600 cu.ft. an hour. The station meter sealing medium is checked and then observations are made between the meters.

Testing Large Positive Station Meters

At one time it was the practice to check wet drum type (capacities up to 250,000 cu.ft. per hour) meters against a 100-lt test meter, which was a slow and laborious method. It was more exacting than was really necessary, for the first essential of the test was to obtain absolute soundness. A leak of, say, 100 cu.ft. per hour, when passing the test meter rate of 600 cu.ft. per hour would materially affect the result; but when passing 250,000 cu.ft. per hour it would be negligible. So much time would be wasted getting the drum sound, with no ultimate advantage. Secondly, to pass one revolution of the drum (say, 2,500 cu.ft.), it would take over four hours to make the test when working at the test meter rate, and changes in temperature were inevitable, a condition which should always be avoided.

Consequently, in Birmingham steps were taken to test meters at a higher rate, and a portable rotary test meter is used having a capacity of 50,000 cu.ft. per hour. This is not employed as a standard, but as a medium, and chosen for its portability and high capacity. A portable fan plant is used in conjunction with it, with interchangeable A.C. and D.C. motors. Air is used as the testing medium.

The fan is a Climax multi-vane with ball bearings. The A.C. motor is a dual frequency, 440 volt, 5 amp, flameproof motor made by Lancashire Dynamo & Crypto, Ltd. The starter is an Ellison oil-immersed, direct-on unit with flameproof casing. The D.C. motor is 220 volt, 15 amp. The starter is a Vlasto Clark Watson drum, non-reversing. The fan plant is readily changeable and built on a transportable bogey.

A holder of 3,000 cu.ft. capacity, 18 ft. in diameter and overall height 35 ft., is used as the standard, and enables the rotary test-meter to be checked frequently. The holder is erected under cover on a site where sun cannot penetrate, in order to avoid wide temperature fluctuations. The water-sealed holder bell carries a marked scale, and the middle 2,000 cu.ft. can be read off on a flying start and finish. The holder was verified by careful mathematical measurement and tested against the 100-lt. positive test-meter which had been previously verified by the City Justices. A quantity of oil on the water preserves the sheeting. The pressure thrown by the holder was found to be 77 tenths when full and 71 tenths when nearly empty. The average of 74 tenths is used for all tests. Temperatures of the air and the water are taken during the course of any tests.

Prior to testing any station meter, the rotary test-meter is compared with the holder and the error found for calibration when testing. Corrections are made for temperature, pressure, and barometric pressure.

When testing station meters, the first step is to isolate the meter from the works mains. Although the works valves are tightly closed, a body of water is put on them to ensure perfect soundness. This seal must be maintained thoughout the test. It has been found necessary to have a continuous trickle of water kept to its level by a sealed overflow pipe; in some cases even a tar seal may be required. The meter is then purged with an inert gas.

The blower (fan plant) is started up and the outlet valve on the rotary test-meter adjusted to pass the same amount as when the rotary test-meter was tested, around 45,000 cu.ft. per hour. After air has passed through and conditions have been allowed to settle and, in the wet drum type of meter, the water level at the overflow, readings are taken of both meters and the temperatures and pressures noted frequently. Our practice is to make three 10,000 cu.ft. runs which take approximately 14 min. each. The rotary test-meter reading is calibrated and the figures of both rotary test-meter and station meter are corrected to 60°F. and 20 in. Hg.

Rotary and Connersville

The rotary meter does not register correctly at very small throughput. Consequently, in Birmingham, rotary meters have been positioned to enable them to be tested at maximum speed against a positive meter. The meters have given satisfactorily accurate results, and very little attention is needed for maintenance. The outstanding advantage of the rotary meter, apart from the small space it occupies, is that the whole interior can be taken out with very little trouble for inspection and correction, which can be carried out in a matter of hours only. Accuracy depends on keeping it clean, particularly the spindle bearing and the tubes which disperse the gas evenly on the vanes of the fan.

Connersville meters are now extensively used as station meters, and have proved to give very satisfactory results. The accuracy is not dependent on maintaining a water level; measurement cannot be adjusted by altering the level of a seal; accuracy is not affected when the meter is overloaded; and accuracy of measurement is maintained for the life of the meter, because the impeller profiles are true mathematical curves and the displacement is accurately calculated and cannot change.

The meter is provided with a tank to flush the impellers, and should be used only when there is a rise in differential absorption. The bearings should be kept in good conditon to avoid excessive loss of pressure. Extra filaments can be applied to record time, variation of pressure, volume, and temperature. When there is a possibility of wide variations this P.V.T.T. recorder will enable accurate measurement to be obtained.

NALGO

We regret that information concerning the National and Local Government Officers' Association was accidentally omitted from the particulars of 'Kindred Organisations' in the 1954 edition of the GAS JOURNAL CALENDAR AND DIRECTORY. NALGO has, in fact, representatives on the Senior Gas Officers' Joint Council, the National Joint Council for Gas Staffs, and the National Joint Standing Committee for Intermediate Grades. The following details should be noted by those readers who desire to keep their Directory information up to date:—

NATIONAL AND LOCAL GOVERNMENT OFFICERS' ASSOCIATION (Founded 1905).

Headquarters: 1, York Gate, Regents Park, N.W.1. T/N. Welbeck 4481 (10 lines).

General Secretary: J. H. Warren, O.B.E., M.A., D.P.A., Solicitor.

Organising Officer for Gas Staffs: G. H. Newman.

The Association caters for all gas staffs and senior officers. Its objects are to improve the conditions and protect the interests of members, to provide educational and social welfare facilities for members, to regulate relations between members and their employers, and to do all such things as may from time to time be considered necessary or advisable to promote, safeguard, maintain or improve the interests and status of gas staffs in the gas industry.

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'My engine keeps cleaner on National'

Mr. H. Barham—A Company Director

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Southern Accountants' Third Conference

Progressive Reduction in Time Lag on Annual Accounts

Progress during the first five years of nationalisation was reviewed at the third conference of accountants in the service of the Southern Gas Board, held at Bournemouth last month. The conference was opened by Mr. A. R. McBain, C.B., O.B.E., Chairman of the Board, who welcomed the delegates and guests, including Mr. W. Bailey, Chief Accountant of the Gas Council, Mr. R. A. Kilshaw, Deputy Chief Accountant of the West Midlands Gas Board, Mr. K. G. Vickers, partner in Robson, Morrow and Co, and Mr. G. Bunney, partner in Wood, Drew and Co., Auditors to the Board.

Mr. McBain drew attention to the principal themes of the conference, and in particular said that the value of budgetary control was now beyond controversy, and he referred to the experience and views of his colleagues on the Board. The subjects for discussion at the conference also included training, on which he laid great stress. There would be many opportunities for promotion for those already in the Board's service, provided that they did their best to equip themselves adequately to take on higher responsibilities when the opportunity came their way.

The Chairman said that he had been impressed by the progressive reduction in the time taken to prepare the annual accounts, and he emphasised the importance which the Board attached to accounting information being available promptly. The gas industry, he concluded, was on the verge of great developments, and there was a sound future for those who came into the industry.

Review of Progress

A review of progress in the accounting field covering the first five years of nationalisation and the trend of developments in the future were outlined by Dr. J. M. S. Risk, Chief Accountant of the Board. He suggested that accounting progress could be related to 10 attributes of accounting statements: Speed of preparation; frequency of preparation; relevancy of purpose; comparability; accuracy; consistency; presentation; interest evoked; relation to standards; and forward looking. Stress was laid on the need for speed of preparation, the many factors affecting comparability of accounts and the need to make use of standards to enable management to concentrate on exceptions.

Although not a panacea for industrial ills, and no substitute for good management, budgetary control was a tool of great significance to management, and some of the numerous advantages to be derived from the intelligent application of budgetary control were quoted. It had been found that invariably the initial investigations brought about valuable improvements. Substantial financial savings had been achieved at Bournemouth through the use of budgetary control, and the system was being extended.

Dr. Risk believed that the use of standards would be developed to a considerable degree in the future, both as regards quantities and values as well as for operating efficiencies. It seemed to follow that there would be an extension of the use of budgetary control, perhaps not confined to the Southern Board. Other matters mentioned were the increasing use of book-keeping machines, the vital importance of staff selection, education and training, and the opportunities for promotion which would arise during the next 10 years. Greater attention would be given in succeeding years to reducing the cost of clerical work.

Dr. Risk suggested that the success or failure of public enterprise would be determined by the ability to produce the right goods and services at the right prices. In this accountants could play an important part through the service they gave to management. The speaker concluded by expressing his appreciation of the work done by the accounting staffs of the Board who had toiled valiantly, often under difficult conditions, during the first five years. With the continued enthusiasm and hard work of the accounting staffs at all levels further substantial progress would undoubtedly be achieved.

Clerical Training

At a second session the conference was addressed by Mr. G. Mills, Assistant Comptroller of J. Lyons and Co., Ltd., and Chairman of the Education and Training Committee of the Office Management Association. At this session members of the Office Management Association resident in Bournemouth were present and took part in the discussion.

Mr. Mills referred particularly to the training system which had been developed in his organisation during the last seven years. Their programme was based on the 'Training within Industry' scheme, but he underlined the need for consistently checking the progress made to ensure that the better methods were maintained, and the training effort was an integral part of the organisation. To this his Company attached the greatest importance. In his address, and in the subsequent discussion, Mr. Mills showed the importance of a systematic approach to the training of clerical staff of all levels.

Mr. R. W. Hewitt, Chief Accountant of the Gas Board's Eastern Division, introduced proposals for training of the Board's clerical accounting staff, and after the delegates had been formed into panels to consider the paper and formulate questions, a full discussion ensued. The proposals were intended to provide a basis on which practicable schemes could be adapted to the needs of each of the Board's operating groups, the practice varying according to local conditions. At the close of this session Dr. Risk indicated that the question at issue was not whether training was necessary, but merely whether it would be done badly or well.

Budgetary Control

Mr. A. Kenyon, addressing the third session, used a number of prepared demonstration boards to illustrate the technique of budgetary control, the example being a general one applicable to all types of industry. The illustration was developed section by section on successive demonstration boards to which additional strips were fixed to illustrate the comparison of budgeted and actual results and the calculation of variances. A final summary board showed the exact tie-up between the budgeted profit and the actual profit revealed by the ordinary books of account.

Following the generalised example of budgetary control Mr. H. K. Wilkes submitted a paper on the book-keeping system used in connection with budgetary control at the Bournemouth undertaking. He demonstrated the tie-up between budget and actual results, and emphasised that the whole system worked on the double-entry principle.

An address by Mr. J. C. Hogg, General Manager of the Bournemouth Group, was a high light of the conference. Mr. Hogg outlined the development of the system at Bournemouth and its effective use by the various levels of management, and he explained the importance of measurement as the foundation on which the system of budgetary control was based. Perhaps the most impressive feature of Mr. Hogg's address was a schedule of some of the improvements which had been achieved in the three to four years during which the system had been in operation. Over a wide range of activities in the gas undertaking, valuable and in some cases large savings had been effected and were being maintained. The process was a dynamic one, and Mr. Hogg envisaged further improvements in succeeding years.

Mr. K. G. Vickers, formerly on the Board's staff and now a partner in Robson, Morrow and Co., reviewed the sessions on budgetary control and stressed the importance of close co-operation between engineers and accountants.

Before the session terminated Mr. T. E. D. Mason, Secretary of the Board, expressed the hope that as and when the system was extended to other undertakings a uniform terminology would be adopted, and that full use would be made of the valuable experience gained at Bournemouth over the last four years.

Mr. J. T. Haynes, President of the Institution of Gas Engineers and General Manager of the Board's Western Division, addressed the members of the conference and emphasised the vital importance of team work in the industry, for which he could see an attractive future.

Short Papers

Three short papers were presented. Mr. R. Sunman, in speaking on cost section control, dealt particularly with the aspects of staff instruction and methods of organisation of small sections. Mr. H. A. Wright elaborated the technique of accounting in round pounds, and the resulting advantages. The third paper, by Mr. R. B. Curtis, showed how time could be saved in evaluating stock sheets by using the practice method of multiplication on an analysis machine.

At the close of the conference Mr. W. Bailey, Chief Accountant of the Gas Council, reviewed the conference and expressed his pleasure at being invited, along with his Assis-

tant, Mr. J. Jones, to a conference at which the papers and discussions had all been of a high standard. The first main topic of the conference had been the need for training, and he reinforced the views of earlier speakers on this important subject. In connection with professional qualifications, Mr. Bailey thought that while one qualification might be satisfactory for those at lower levels, it was in his view desirable to widen the scope of one's knowledge if one aspired to reach the higher positions.

Regarding the second principal theme of the conference, namely the use of budgetary control, Mr. Bailey expressed the view that budgetary control would come in some form or other throughout the industry, and he had been particularly interested in the address given by Mr. Hogg as a General Manager and the valuable results which Mr. Hogg and his staff had achieved through the use of this management tool.

Mr. J. T. Haynes also gave his impressions of the conference, and said he had been struck by the quality of the papers and demonstrations and by the vigour of the subsequent discussions.

In conclusion, Dr. Risk said that without doubt the conference had been a success, but to make it fully effective it was essential that all should continue their endeavours to achieve the twin objects of improving the quality of the accounting service to management and reducing the cost of that service.

GAS SUPPLY IN A RURAL DISTRICT

FROM A PAPER TO THE LONDON AND SOUTHERN JUNIOR GAS ASSOCIATION ON FEBRUARY, 12, 1954, BY

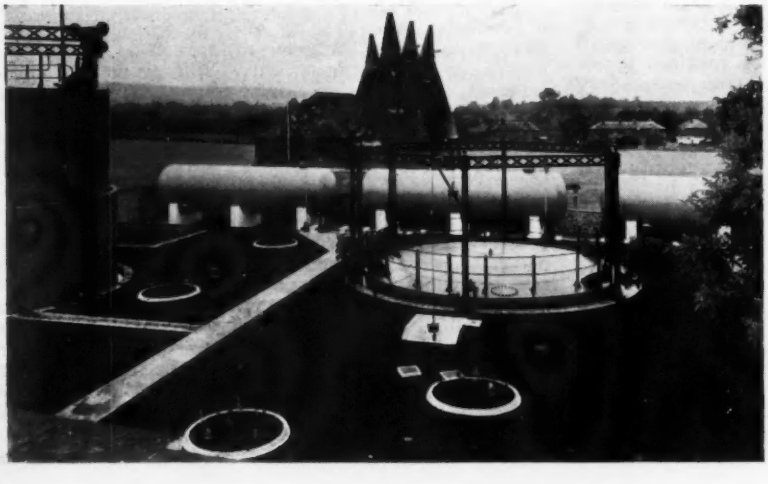
E. J. HOADLEY,

Assoc.M.Inst.Gas E., A.M.Inst.F., District Manager, Maidstone Group, Kent County Division, South Eastern Gas Board.

With the exception of holder stations and high pressure mains, my responsibilities have covered the distribution of gas, main and service laying, and sales and service to consumers throughout the area of the Maidstone Group of the South Eastern Gas Board. The district measures 27 miles from north to south and 29 miles from east to west, the total area involved being 450 sq. miles.

In the 'Kingdom of Kent' there live two war-like tribes ready to defend their rights against intruders from

Mr. Hoadley's paper was well presented, and it was not read in full. At the end of the paper, the author had listed points for discussion, which he considered might be controversial. Interest was sustained throughout the reading, by the use of film strips. A clear idea of the type of territory covered was given by such pictures as this one of Tenterden High Street, typical of the village scenery in a Kent county district.



The film strip illustrated on the left was one of the best shown, depicting, as it does, the harmonious appearance of the holder station at West Malling against the surrounding countryside. A note of humour entered Mr. Hoadley's remarks when further strips demonstrated the efforts made since nationalisation at more efficiency in various departments. Here, the 'before and after' theme was introduced.

land or sea. They are the 'Kentish Men' and 'Men of Kent,' living respectively east and west of the River Medway. This river, on which Maidstone stands, is a serious obstacle in our lines of communication. With the exception of a narrow bridge at Aylesford, built in the 14th century, there is no road crossing of the River Medway between Rochester and Maidstone, in which town a single bridge takes all the traffic.

Integration

Gas is now made at two stations only—namely, Maidstone and Snodland. The Maidstone Gas Company, however, had absorbed a number of small gasworks, including Wateringbury, Sutton Valence, Charing, and Hollingbourne.

In 1947, the South Eastern Gas Corporation, of which Maidstone was a constituent Company, decided to lay 35 miles of high pressure main into the Weald of Kent mainly to supply consumers in Tenterden, Cranbrook, and Hawkhurst, each of which had its own small gasworks in which production costs were high. This main, which also formed a link between the high pressure systems of the Maidstone and Mid Kent companies, was completed and the last works was shut down in 1951.

After vesting date the Mid Kent gas undertaking was included in the Group. This undertaking, originally the Mid Kent Gas Light and Coke Company, was based on its manufacturing station at Snodland, from which gas was pumped through high pressure mains over a wide area between Wrotham in the north and Staplehurst in the south, and this Company had also absorbed numerous small works, including Staplehurst, Borough Green, and West Malling. Prior to the war the unaccounted-for gas in this area was more than 25% but, due to the untiring efforts of the last engineer and manager, this figure was reduced to 6.8% before vesting date.

This high percentage of unaccounted-for gas before the war was, of course, brought about by a large number of adverse factors; but from enquiries which I have made, it would seem fair to attribute much of the trouble to: Bad joints on mains, holes in steel mains, leakage from holders, and blowing from holders in remote holder stations in the early morning.

The vigorous and successful programme which was introduced to reduce this figure included attention to the following: Cutting-out and re-running many joints on mains; replacing of corroded steel mains; relaying mains in a larger size, thus making it possible to transmit gas at lower pressures and to shorten the period during which pumping took place; systematic examination of holders, particularly at cupping sheets and crowns, and repairs where necessary; careful maintenance of automatic valve gear; installation of high pressure governors and low pressure mains circuits in villages, to take the place of high pressure mains with high pressure services and regulators; installation of additional high pressure governors at points where mains were carrying gas at unnecessarily high pressures and serving only a small number of consumers; replacement of leaking service pipes; recording gas used for purging new mains; very prompt action when a leakage from, or accident to, a main was reported; changing faulty meters.

To whatever distance we extend our main, there is always someone just a little farther on—somebody who wants to cook by gas. Potential consumers living just beyond the end of our mains have been encouraged to buy cookers converted for temporary use with bottled gas. It might be worth our while to extend this practice throughout small estates and hamlets to ensure a definite load before laying additional mains.

Sales and Service

Maidstone houses the headquarters of the Kent County Council, many banks and insurance companies' branch offices, and most of the county organisations. It is the centre of a prosperous agricultural zone and holds a large bi-weekly market.

Sales and service in Maidstone conform to the accepted pattern for a built-up area. We serve rural consumers dispersed over a wide area. About 21,000 of our consumers live within a 3-mile radius of Maidstone gasworks. The remaining 11,000 are so widely dispersed that we find it necessary to use eight vans to serve them, in spite of continued efforts to effect economies by integration and re-organisation.

During 1952, 11% of our output was sold to industry. In 1953, we obtained an additional load which will eventually amount to 250,000 therms per annum. The industrial output improved by 20% during 1953.

We employ six district representatives, each serving approximately 5,000 consumers. Four of these representatives are also acting as instructors in gas fitting technology and practice at evening classes held at the technical college. During the twelve months ended September 30, 1953, we connected 480 houses in 18 estates, in addition to those on individual private sites. One of our district representatives in the Weald of Kent travelled 24,000 miles in the course of his work during 1953.

Authorised Dealers

The recently launched authorised dealers' scheme will be of particular assistance to us in those areas where showrooms are not justified. After the signing of the agreement with each firm of authorised dealers, we invited the principals and their salesmen to discuss the whole scheme. From the experience gained it would seem that a useful purpose would be served by arranging an interchange of salesmen for a period of a week or so.

We have encouraged dealers to run exhibitions in their own towns and intend to co-operate by loaning gas appliances for display and platform use. Our Home Service Adviser will collaborate with them in giving demonstrations of cookery and laundering, etc.

Since the scheme has only been in operation in our Group since early September, it is too early to assess its effect on our business, but I feel confident that it will be of benefit to the Board for the following reasons:

(1) The scheme gives us window displays in areas where it would not be an economic proposition to have our own showrooms. In addition we are able to introduce high-grade gas appliances into showrooms and windows where previously nothing but electricity or oil burning equipment was to be seen. It was, in fact, this state of affairs which induced me some two years ago to ask the managing director of a leading firm of dealers why he was giving preference to electrical equipment. He replied that he would welcome any opportunity of showing high-grade gas apparatus, but that, in the circumstances of his business, he could obtain only second-rate appliances which did not compete with the best electrical goods.

(2) By enlisting the co-operation of these firms we have materially increased the number of people who are regularly recommending gas appliances to the public.

(3) We must also remember that there is a certain type of customer who likes to visit an impartial firm of retailers to obtain an unbiased opinion as to the best fuel to use for a particular duty. With no detailed knowledge of, or access to, suitable gas equipment, it is natural for the retailer to recommend some other means of heating with which he is more familiar. If he becomes an authorised dealer we stand a much better chance of obtaining the business.

Bonus and Payment of Commission

The payment of commission to authorised dealers naturally raises the problem of commission on sales for our own employees. Though the introduction of such a system bristles with difficulties, it must be given careful consideration. A commission based on individual sales and designed to create a competitive spirit can, in certain circumstances, react most unfairly, due to factors such as the extent of building development, density of population, class of property, and so on, in a particular salesman's area.

There is also the risk that it might give rise to unde-

irable friction and jealousy in a team which had hitherto een pulling its full weight. Having in mind the parcular features of our own district, my personal preerence is for a scheme on the following lines:

(1) A small commission for 'prospects' obtained by mployees other than sales staff.

(2) A half-yearly bonus, shared among the district elling staff and based on total sales effected above an greed quota.

(3) Such a bonus would encourage *increased* sales and reate a competitive spirit among neighbouring units ithout any of the disadvantages inseparable from the ayment of individual commissions.

For some time we have been enjoying a healthy influx f work from new building estates and from other sources, nd we have found it necessary to employ registered conractors to carry out some of the carcassing in new houses, eaving our fitters free to handle installation and revenue itting within a reasonable period of time—say, seven o 10 days from receipt of order. This has proved an excellent arrangement, since we are under no obligation to the contractors to provide them with any set amount of work. We therefore use this method only at peak periods.

The contractor quotes for carcassing each type of house to our specification and, if approved, a separate order is issued for every dwelling, quoting the appropriate job voucher number for the issue of materials. The district foreman works in close co-operation with the contractor, arranges the issue of his material from our stores, and inspects and tests the carcass before it is handed over to him.

Integration and grouping have made it possible to eliminate a number of small stores in outlying villages and to reduce the quantity of materials held in others. We now have one Group store at Maidstone and depot stores at Snodland and Cranbrook, at both of which we are maintaining a minimum workable imprest stock. Since vesting date the growth of business in Maidstone and the formation of the Group resulted in serious over-loading of the Maidstone stores.

Additional binning and drastic replanning last year have, however, enabled us to make the most of the limited floor area at our disposal. Every bin now bears the Board's reference number, which also appears on the relevant stock card and summary-sheet. This feature has proved of immense value to the non-technical staff who maintain the stock cards.

Meter Reading and Collection

Continuous meter reading and meter collection in normal working hours are carried out by a team centred on the Group Headquarters. These men are not available to deal with emergency calls from country districts in off-duty hours. It devolves upon the resident fitter to clear a full meter or release a jammed mechanism at such times.

The introduction of the Gilbert system, whereby coin meters are cleared only once in three months, and post-war increases in the price of gas have made it essential to remove penny meters of all types as quickly as possible.

It is obviously an advantage to have a man living near his work. When appointing resident fitters, other things being equal, preference is given to the man with initiative.

Many customers regard a nationalised industry as a vast and remote organisation whose senior officers are unable to pay close attention to individual requirements. I am convinced that the status of the local man must be maintained and that he should be given every possible support from higher formations. This is the policy of the South Eastern Gas Board.

Many customers are more ready to consider the recommendations of a fitter than the smooth talk of the supersalesman. Resident fitters' wives also play a valuable part in our relations with the public, and we pay them for their help in answering telephone calls and dealing with customers' requests at their doors.

Post-war housing development provided the gas industry with a wonderful opportunity of extending its business. Results show that our Group has not allowed this opportunity to slip. Since 1945 approximately 4,000 council houses have been completed in areas served by our mains, and 85% of the tenants are consumers of gas. These have contributed towards a considerable increase in sales of gas during that period, the total sales for 1952 showing an increase of 33½% over those for 1945, while the consumption in therms per domestic consumer rose from 115 to 127.3.

Housing estates have varied in size from Maidstone Corporation's Shepway Farm Estate, planned for approximately 4,000 dwellings, to very small estates in remote hamlets. Our mains extend into the area of 10 public authorities. Though the arrangements made with these authorities are varied to suit the policy of the authority concerned, the general method of approach is similar in every case.

One council recently voted in favour of 50/50 gas and electricity for one estate, but it has since reverted to 100% gas.

The majority of the new estates are now being sited in rural areas or the fringes of a town, and this practice tends to increase our costs for affording a supply of gas. I have in mind, in particular, the increased costs resulting from the continual extension of trunk or feeder mains, the use of transport for conveying our employees to and from these sites, and the provision of governors and kiosks on high pressure mains.

There is the general tendency to introduce elaborate curves, varying levels, and open spaces in the design of present-day estates. While I should be the first to agree that these features improve the appearance of the site, they undoubtedly increase the cost of laying gas mains and other services.

The senior officers of our local authorities are most co-operative, and surveyors are usually willing to discuss building projects in the early stages. Working in a rural area, the surveyor of a local authority does not get much chance of seeing other housing schemes in which the uses of gas may be demonstrated. We therefore seek every opportunity to take them to our laboratories or to any exhibition of interest in order to widen their knowledge on the application of gas in relation to new housing projects.

Publicity and Display

Our main showroom in Maidstone was built in 1928 and modernised, with help from the Gas Light and Coke Company, in 1937. The staff consists of a manager with two assistants, dealing with over 40,000 callers per year (in addition to casual unrecorded enquiries), and selling appliances valued at more than £27,000.

The other showrooms were formerly owned by the smaller undertakings absorbed into the Group, and are situated in Snodland, West Malling, Borough Green, and Hawkhurst. For the most part they are staffed by the wives of members of our staff.

It is not economic to provide showrooms in country districts where no suitable premises are owned by the Board, but we have overcome the difficulty in many cases by compromise. In the country villages not served by a showroom, we have concentrated our attention on those localities where development is planned or in progress. Our methods have varied with the type of locality and the facilities available.

The Board's travelling showroom has been used both in the centres of villages and, in one case, in a hutted camp where the occupants were to be re-housed in a new estate. We now have a gas consumer in every house on this estate.

Some expense and a great deal of care are inseparable from the loan, towing, parking, and guarding of the mobile showroom. Hence an alternative approach was made to the problem in another village by hiring a local assembly room for a few shillings a week during the vital months prior to the handing over of the new council houses.

This brought equally good results because the local district representative was able to start the sale on the customer's doorstep and then invite the customer to inspect the appliance in the temporary showroom, where he clinched the deal. I would mention that during this period

we ran well-advertised cookery demonstrations on several afternoons and evenings.

Joint consultation in one form or another has been practised at Maidstone for many years, and has now been amended to conform with the procedure agreed between the Board and the trades unions. My duties include attendance at the district consultative committee meetings, at which we welcome discussion on suitable items brought forward by the employees' representatives. It has always been felt that it was far better that any alleged grievance should be promptly and properly aired at such meetings than give rise to discontent beneath the surface. While keeping to our terms of reference, we have never stifled relevant suggestions from the employees' representatives, from whom many excellent ideas have been received.

Cold Spell Sets Up New Records

The Gas Council issued the following statement last Thursday: 'All records in gas supply have been broken in meeting the demand created by the recent cold spell. Last week the gas boards supplied 15,710 mill. cu.ft. This beat the previous week's figure of 14,850 mill. cu.ft., which was itself a record. It is 30% higher than the 1949 peak, before nationalisation of the industry, and 11% more than the highest output last year.'

New record gas outputs were achieved almost everywhere during the recent cold spell. We have already described the measures taken by the North Thames Gas Board to cope with abnormal peak loads and mentioned the all-time record send-out of 394 mill cu.ft. on February 1. It has since been officially stated that during the very cold period the Board's gas production was running at about 12% higher than ever before. Only for a comparatively short period was it necessary to reduce pressures.

The South Eastern Gas Board said that during the cold period its output had reached 267 mill. cu.ft. in a 24-hour day, 17% higher than ever, and that it had not been necessary to cut pressures.

Gas produced and purchased for resale in the area of the North Western Gas Board amounted to 2,111 mill. cu.ft. in the week ended January 31. This was 13.3% more than in the corresponding week of 1953, and was the highest total ever recorded in the area. The previous maximum was 2,045 mill. cu.ft. in the week ended December 7, 1952.

The cold weather proved the Wales Gas Board's biggest testing period, but thanks to the integration of supplies on the gas grids there was no reduction in supplies to industry, and only a minor interference with domestic demands. Mr. T. Mervyn Jones, Chairman of the Board, gave this news at a Press conference in Cardiff, when he paid tribute to the co-operation of outside suppliers of gas and to the magnificent efforts of the Board's employees in coping with the increased work.

Consumption demands in the Cardiff area alone jumped by 45% in three or four days, he said, and throughout Wales the story was the same. Iced holders and frozen water taps were a few of the difficulties that had to be contended with, but only at Port Talbot and in the Rhondda was there a breakdown in supply. On February 2 output reached an all-time peak with every bit of plant producing gas.

The Board's Distribution Engineer, Mr. W. T. Hird, was jubilant about the success of integrated supplies. 'But for integration we would never have faced this test successfully,' he said. 'The cold spell has proved the value of integrating supplies on a gas grid more than anything else could have done.'

The output in the Sunderland Division of the Northern Gas Board reached an all-time peak of 11,123,000 cu. ft. on February 9, an increase of 6% compared with the same day last year and 500,000 cu.ft. more than the previous peak day during the winter of 1951-52. Throughout the cold spell there were no cuts or reduction in pressure in the Division.

A new record of 4,472,000 cu.ft. on one day in the early part of the cold spell at Peterborough was exceeded on subsequent days with totals of 4,485,000 and 4,955,000 cu.ft., against a previous record of 4,347,000 cu.ft. in December, 1952. On January 29, 1947, Peterborough had a record output to that date of 2,588,000 cu.ft. The increase in the past seven years has amounted to 91%.

The Wisbech undertaking of the Eastern Gas Board sent out 891,000 cu.ft. on January 25. As the cold spell continued, gas demand crept up until a new record total of 965,000 cu.ft. was reached on February 1. In January, 1947, the highest daily output was 748,000 cu.ft. There has thus been an increase of 29%.

The Gothic Welfare Association, Social Section of Glover & Main Ltd., recently organised a party for employees' children between the ages of five and 11 years. A total of 420 presented themselves at the works canteen and sat down to an enjoyable tea served by a willing band of volunteer helpers. After tea, the children were entertained to a puppet show and a film show, and then themselves took part in a talent competition, to the enjoyment of both audience and contestants.

ALLAN TAYLOR (Engineers) LTD. and the NORTH WESTERN GAS BOARD have collaborated in producing—

THROUGH-ROAD FOR GAS

A Film demonstrating the Clearance of Service Pipes by Modern Method

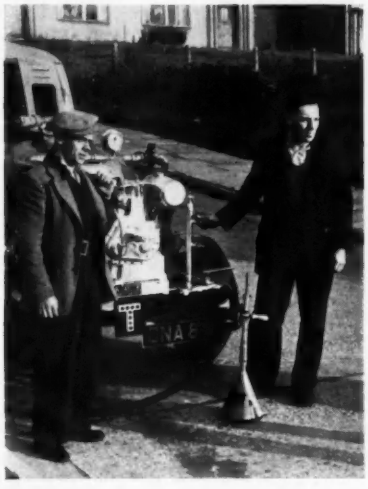
Last week, Film Producers W. H. B. Porter (Distributing Engineer to the North Western Gas Board) and R. Forsythe (Sales Manager of Allan Taylor, Ltd.) introduced us to 'Through-Road for Gas,' a 20-minute film showing in cogent and highly entertaining fashion the operation of the Allan Taylor service pipe cleaning outfit.

The film will be used for training operators; the main ideas being to increase overall efficiency, to encourage team work between operator and assistant, to be courteous all the time and tidy on consumers' premises and, of course, to cause as little inconvenience to the public as possible.

Two Rossendale men and a Group Home Service Adviser play star parts in the film. They are Mrs. L. C. V. Percival, Home Service Adviser to the Bury-Rossendale Group, with Jack Hamer and Raymond Anker of the Rossendale Distribution Department. The first filming session took place at the Rossendale showrooms where a special set consisting of a dummy kitchen, complete in every detail, was erected by the Rossendale staff. For exterior shots the home of Rossendale foreman mainlayer Kenneth Airey was chosen.

Link-Up, the House Magazine of the Board, says the new suction service cleansing machine, which is the real star of the film, has revolutionised methods of clearing blocked service pipes. Before its introduction a blockage often entailed taking up the footpath and garden path in front of a house before the offending pipe could be reached. Now the machine, hauled on a trailer behind a N.W.G.B. van, stops in front of the house, a rubber pipe is connected to the service pipe, and the machine, working like a giant vacuum cleaner, sucks away all the corrosion that often forms the blockage. It is estimated that no less than 85% of supply troubles can be righted by the machine, which is cleaner, quicker and cheaper than the old system.

Mr. Porter informs us that between April 1, 1950, and December 31, 1953, when accurate records have been kept, there were carried out 502,687 service clearing operations. In the financial year commencing April 1, 1950, 44% of the services cleared required a ground opening. By the end of 1953, this figure of ground openings had been reduced to 18%. The total number of services cleared per annum has been further reduced over the period, and a lot of this reduction is due to extracting the rust by the vacuum method instead of blowing it back into the main as was commonly done previously.



Starring for Allan Taylor (Engineers), Ltd., and the North Western Gas Board —Jack Hamer (left) and Ray Anker, of Rossendale, pose for a 'still.' On the ground between them is the ingenious revolving container from which a flexible wire 'snake' can be wound into an obstinate service stoppage.

A very important point is that ground openings for clearing services cost up to £5 when reinstatement charges are included. There are obviously appreciable savings by reducing the number of ground openings, and the Board aims at reducing them to something like 10%.

The 75 gallon Allan Taylor pressure/vacuum service clearing equipment complete with compressor which can be used for vacuum or pressure. Normally used as a trailer unit and towed by a 10 cwt. van. Clearly seen (central in photograph) are the Cyclone *and* Test Bar. *This additional equipment enables the operator to make pressure tests before and after clearing the service pipe, the test taps passing 50 cu.ft. or 100 cu.ft. as required. By using the* Cyclone *the dust drawn from the service pipe is deposited in the sight glass for inspection and can then pass into the easily removable container below. The arrangement further enables the operator at the machine to determine whether or not there has been any success with a clearing operation. The extractor also prevents the greater part of the rust dust from entering the 75 gallon cylinder.*

The Mayor of Ilford, Alderman C. I. Gibson, J.P., opened a series of lecture-demonstrations organised by the Eastern Division of the North Thames Gas Board at Becontree (Essex). Organised in conjunction with the local branch of the Women's Voluntary Services, the demonstrations are proving extremely popular. Held at fortnightly intervals, they include demonstrations on 'Cakes for Tea,' 'Supper Dishes' and 'Easter Cookery,' a talk and demonstration on home laundry and care of clothes, and two talks, on 'Home Safety' by the Medical Officer of Health for Ilford, and 'Hobbies,' by the Borough Education Officer.

LONDON JUNIORS' SOUTH LONDON VISITS

The London and Southern Junior Gas Association organised small groups for two interesting visits on February 4. One party, photographed here, went to the Greenwich Metal Works of G. A. Harvey & Co., Ltd., where the members' main interest was in the use of gas in the factory.

The other party, of 18, visited the Telcon Works of the Telegraph Construction & Maintenance Co., Ltd., manufacturers of cables, metals, and plastics. The party, which included Mr. E. W. B. Dunning, Senior Vice-President of the Association, toured the power cable department, the plastics cable department, and the metals department, where great interest was shown in the manufacture of the various products, and particularly in those processes involving the use of gas, and also the use of gas for shop heating.

Special Courses at Leeds University

During the second term of the current session of the Fuel Department at Leeds University a course of 14 lectures, divided into three sections, has been arranged in association with the Department of Adult Education and Extra-Mural Studies. A section on gas purification is in the hands of Mr. J. J. Priestley (W. C. Holmes & Co., Ltd.). 'Carbonisation within the Gas Industry' is the subject of six lectures by Mr. F. S. Charnley, of the West Midlands Gas Board. Two lectures on water gas will be given on March 15 by Mr. N. H. Williams (Humphreys & Glasgow, Ltd.), and two lectures on refractory materials by Dr. A. T. Green, O.B.E., Director of the British Ceramic Research Association, on March 8. The lectures by Dr. Green comprise the second section of the series. The third section is concerned with metallurgy, and is covered by two lectures tomorrow by Dr. R. V. Riley, Research Manager, Staveley Iron and Chemical Co., Ltd., and two lectures by Mr. J. Colvin (Stewarts & Lloyds, Ltd.), on a date to be announced later.

Newry Urban Council Gas Committee (Co. Down) expressed approval at the action of the gas manager when he told the members how he had dealt with a serious gas escape. Three families were evacuated as he felt it would be highly dangerous for them to remain in their homes. One man, however, would not agree to go to a boarding house, and spent two nights at the gasworks. He slept in the workmen's room and seemed to enjoy it very much.

COMPANY NEWS

BROOM & WADE

Maintaining their annual dividend at 14% in respect of the year ended September 30, 1953, Broom & Wade, Ltd., manufacturers of air compressors and pneumatic tools, expanded their group profits from £432,159 to £516,846. Tax provision is £46,359 heavier at £303,099 against £256,740 in the previous year, leaving a net profit of £213,747 compared with £175,419. Since the company became public in 1935, it has increased the value of its turnover by over 15% each year. Shareholders will not benefit immediately from the rise in profits, the Board has decided

ELLIOTT BROTHERS

To develop its interest in the manufacture of process control apparatus, Elliott Brothers (London), Ltd., has acquired the assets and goodwill of Bristol's Instrument Co. of Weymouth and entered into a licence agreement with the Bristol Company of Waterbury, Connecticut, U.S. Mr. R. F. de Trafford, Chairman, says that the acquisition and the arrangement with the American company should enable Elliott Bros. to effect considerable economies in development and production costs and to expand successfully its activities in the process control field. The purchase consideration was approximately £235,000, of which £42,500 has already been paid. The balance can be spread over two and a-half years and the directors consider that it could be provided out of future profits and certain stock reductions.

R. H. NEAL & CO.

R. H. Neal and Co., Ltd., manufacturers of mobile cranes, have declared an interim dividend of 7½%, less tax, on reorganised capital. For the year to March 31, 1953, an interim of 7½% was paid on £65,000 and a final of 7½% on the present capital of £150,000. The 1953-54 interim is as forecast last September by the chairman.

GEORGE COHEN

The directors of George Cohen Sons & Co., Ltd., have resolved that the half-yearly dividend due on March 31, on the £1,500,000 4½% cumulative preference stock, shall be paid at the rate of 4½% per annum, less tax, and an interim dividend of 3½% actual, less tax, on the £1,500,000 ordinary stock in respect of the financial year ending on that date.

DONALD MACPHERSON

Donald Macpherson and Co., Ltd., are to pay a final dividend of 17½%, making 27½% for the year to October 31, 1953, on capital of £300,000 as increased by 150% scrip issue. An interim of 25% on £120,000 and final of 16% on the present capital were paid for the previous year. After charging depreciation and directors' fees, the net trading profit was £242,737, against £200,623. Taxation amounted to £135,000 (£130,000), leaving £107,737 (£70,623) net. Reserves, etc., receive £45,000 (£26,744) and carry-forward is £61,520 (£84,158). The sum of £20,000 excess tax provision has been credited to profit and loss, and £20,000 additional depreciation of plant debited.

POWER-GAS CORPORATION

Mr. N. E. Rambush, D.Sc.(Hon.), M.I.Chem.E., F.R.S.A. (chairman and managing director), presided at the 54th annual general meeting of the Power-Gas Corporation, Ltd., in London, on January 28. In his circulated statement for the year ended September 30, 1953, he said the directors, having considered the profit available and the strength of the Group's position, recommended a dividend at the rate of 10 per cent. plus a special bonus of 2 per cent., both less tax. Profit on trading and other income for the Group was £765,731 (£725,610 in 1952); current taxation £333,973 (£320,922); Group profit after deducting all charges including taxation £269,936 (£261,243). Orders booked during the year amounted to £6½ mill, slightly less than the peak figure of last year. The value of orders from the iron and steel industry was the highest in the company's history. Orders for the chemical industry had been maintained at a satisfactory level. The company continued to contribute substantially to the country's export trade. During the year their resources had been fully employed. Orders on hand would keep them busy for some time and they were hopeful that the improved flow of raw materials and bought-out components coupled with the increased capacity of new works and contracting organisations would enable them to offer quicker deliveries than hitherto.

Trade News

Self-Cleaning Strainer

A number of industrial fluid strainers have been put on the market which are cleanable without interrupting the flow of the liquid through the strainer. The Rotoklene self-cleaning strainer is of simple design with few parts. These are so substantial that they are not liable to failure from corrosion or weakness. It is strongly constructed, with ample wearing surfaces, and it can be operated continuously by belt or motor drive where constant cleaning is necessary. Winding with wire of the Rotoklene special section is immensely strong, offers a resistance to flow, and does not become choked. Straining down to 0.002 in. can be obtained without diminution of strength. Alternatively, for those who prefer wire cloth —which has its advantages for some liquids—this is fitted in a well-supported and protected manner, permitting replacement in a few minutes.—*Ashworth & Parker, Ltd., Riverside Works, Bury, Lancs.*

'Secondite'

A demonstration took place recently at Marylebone Goods Yard, London, N.W.1, when, in the presence of scientists, engineers, and specialists, representing every major interest of Government and industry in this country, 'Secondite,' for the first time, was publicly shown.

'Secondite' is a processed vegetable matter, consisting of the husk of rice. Three key patents and eight applications for patents cover the processing and application methods, most patents having been applied for in every country in the world. Among other things, the patented process consists of a special treatment of the husk. The product is divided into three types, A, B, and C. Types A and B, with appropriate binding agents such as cement or magnesite, can be used for construction materials adaptable for the building of houses, silos, insulating materials, sound absorbing panels, pavements, protection of gas and petrol tanks, reservoirs, and protection from detonation of any highly inflammable volatile material. A and B have mechanical applications for the protection of internal combustion engines, mobile and fixed tanks, gas or petroleum pipelines, filters for industrial and chemical industries, etc.

Type C is used for the construction of pavements or flooring, stronger than marble and warm as wood. It is easily turned to such varied uses as ceiling structures, production of building fixtures, such as window or door frames, furniture, containers for corrosive liquids, piping, fire resistant walls, and other fire resistant types of construction work, refractory materials, etc.

In all its types, 'Secondite' is termite proof.

One of the demonstrations showed a 'Secondite' diaphragm being filled with petrol, and thereafter heat applied by an oxy-acetylene torch to the back of the diaphragm to which a steel plate had been fitted. The diaphragm emitted a dark gas, but, despite the temperature of 3,000°, this gas did not catch fire. The principal use of 'Secondite' is to withstand the most intense flames and temperatures for long periods.

Following the demonstration, a question was asked whether there was likely to be sufficient supply of rice husks or whether 'Secondite' would be a short supply material. The answer was given that every metric ton of rice harvested produced 2 cu. m. of waste rice husks. For every cu. m. treated by the 'Secondite' process there was a loss of 20% in weight, but an increase of 20% in volume. The quantity of rice harvested throughout the world was about 300 mill. tons per annum, still increasing. How much of this could be utilised for the 'Secondite' process was yet unknown, but there was not likely to be a shortage.—*Secondite Co., Ltd., 25, Millbank, London, S.W.1.*

New Lamps for Industry

Designed to promote better working conditions, greater efficiency and increased safety, a new range of portable lamps for industrial use has been produced by Oldham & Son, Ltd., of Denton, Manchester. The new lamps have been specially designed to withstand an unusual amount of wear and tear and to give maximum safety under all named conditions.

Included in the series is the Tanka II portable electric lamp, which gives security in use by means of a magnetic lock over the charging contacts and sealed locks on the lens ring and lamp top. It gives a high intensity light for over eight hours without recharging, and is recommended for use in oil refineries, gasworks, chemical works, on oil tankers, etc. For industries using a small number of these lamps the best method of recharging is by means of the Oldham single handlamp charger specially designed for use by non-technical personnel. A tool and spares kit containing all items necessary for maintenance is available.

A new three colour signal lamp for operation above or below ground is the Oldham shunters' lamp. Developed from the standard Oldham miners' lamp, and approved by the Ministry of Fuel and Power, it gives a white light for general illumination. Finger-tip manipulation of a handy switch gives a red or green light as required. Also included in the new range are two sizes of the Oldham 'Tuba' electric safety torch. The new standard G.W. Oldham cap lamp has been developed from the Oldham miners' cap lamp, now used in the majority of mines throughout the world. These lamps provide the maximum illumination along the line of vision leaving both hands free, adding greatly to working efficiency in dark places. The volume of production of these lamps ensures that they can be sold at a low cost, providing an economical and efficient system of portable lighting.—*Oldham & Son, Ltd., Denton, Manchester.*

The Visco Engineering Co., Ltd., of Stafford Road, Croydon, forwards a copy of the new edition of *Modern Dust Collection and Fume Removal*. In Section 1 the firm discusses the problems of dust collection in general and gives numerous examples of the application of Visco plant to various industries. Section 2 deals with the removal of noxious fumes and illustrates different types of equipment which they have supplied for this purpose. Both sections have been revised and enlarged and a number of new photographs added.

Safety in Welding

Accidents to personnel engaged in electric welding are fortunately of rare occurrence, but a recent fatal electric shock sustained by a welder at a large steelworks in South Wales has emphasised the need to ensure that welding accessories are of proper design to prevent accidental short-circuiting. The Mascol electrode holder, supplied by the Quasi-Arc Co., Ltd., is now in wide use. The Mascol holder has an insulated nose protected by a polished aluminium cap, which permits its use in confined spaces without fear of accidental short circuits. The hexagonal body of the holder is made of high strength, high conductivity copper alloy, and a special feature of the holder is a plunger moved by right and left hand threads, which grips the electrode firmly and swiftly. The tubular handle is a push fit, and ample air space ensures adequate cooling.—*The Quasi-Arc Co., Ltd., Bilston, Staffordshire.*

Percentage Elongation Tables

One of the most commonly specified mechanical properties of steel is the percentage elongation, as found by a tensile test of the material. Unfortunately it is frequently incompletely specified so that anomalous differences exist between the values required by different standards, and the severity of the requirements of a particular standard may vary with the test piece used.

For a given carbon, or low alloy molybdenum or chrome molybdenum, steel having a tensile strength in the range of from 20 to 40 tons per sq. in., the percentage elongation will be the same, when determined from cylindrical or rectangular test pieces of any normal dimensions, provided that for each the gauge length, L, bears a constant ratio to the square root of the cross-sectional area, A. This ratio is generally 4, where used in British Standards, that is,

$$L = 4\sqrt{A}.$$

On this basis the recent revised edition of B.S.806 specifies all percentage elongations as measured on a gauge length equal to $4\sqrt{A}$, thus making them directly comparable. This presents no difficulty for circular test pieces, machined all over. For rectangular test pieces, such as those from plates, it is necessary for economy in testing to standardise a few lengths and widths, letting the cross-sectional area vary with the thickness.

The percentage elongations so determined are not directly comparable, even with each other. It is therefore necessary to convert them into the equivalent values which would have been found on a gauge length of $4\sqrt{A}$, when all the results are directly comparable.

Provision for this has now been made in B.S.806:1954, Appendix D, which is based on the analysis of many experimental results. The contents of that appendix are summarised on a card published by Stewarts & Lloyds, Ltd., together with examples. It is hoped that by facilitating the conversion of test results to a rational basis and so making them comparable, it will help to rationalise the specifying of percentage elongations in this country.—*Stewarts & Lloyds, Ltd., Brook House, Upper Brook Street, London, W.1.*

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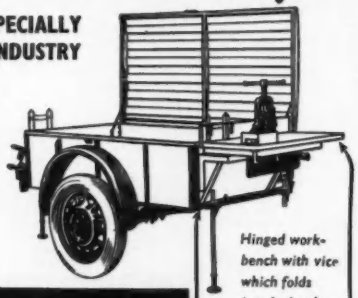

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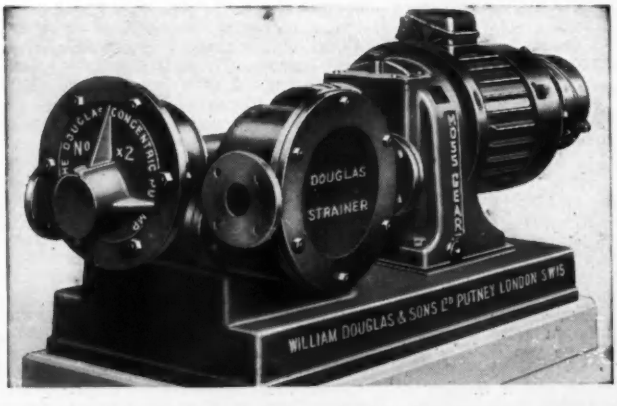

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WILLIAM DOUGLAS & SONS LTD., PUTNEY - - LONDON, S.W.15.

PUBLISHERS' NOTICE

The " Gas Journal " is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates: Home and Empire:—52/- per annum; Foreign:—60/- per annum. (Both payable in advance.) A copy of the " Gas Journal " Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words)—minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep × 7" wide; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS MANAGER: G. B. Torrance, 42, Wychall Lane, King's Norton, Birmingham, 30.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. *'Phone:* Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. *Telegrams:* Gasking, Fleet, London.

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FIRE!
MY LIFE LOST BUT FOR
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"A match struck...an explosion... petrol-sprayed I became a living torch... but my 13-year old Nu-Swift Extinguisher saved me from agonizing death." Everyone has too many fire risks. What would you have done ?

NU-SWIFT LTD. • ELLAND • YORKS
In Every Ship of the Royal Navy

APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

WELL-KNOWN Gas Meter Manufacturing Co. require SALES REPRESENTATIVES for all areas. Replies, which will be treated in strict confidence, should give particulars of age, selling and technical experience, and present salary. Apply : No. 182, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

CALOR GAS (DISTRIBUTING) CO., LTD. require suitably qualified person for services as LECTURER with a mobile training unit. Applicants should preferably reside in the home counties, have experience in teaching (such as part-time evening school). Qualifications should include recognised gas certificate. The appointment involves regular travelling in the United Kingdom and is probably more suitable for an unmarried man, but married applicants will be considered. Prior training will be given. The appointment is pensionable (non-contributory) after suitable qualifying period. Commencing salary from £550-£600 per annum, according to experience and qualifications. Reply in first instance, giving full details of age, marital status, qualifications and experience to The Chief Engineer, Research and Development Division, Coombelands, Addlestone, Surrey, Marking envelope " Lecturer," before March 31, 1954.

WEST MIDLANDS GAS BOARD
WOLVERHAMPTON & DISTRICT
(No. 2) DIVISION
DIVISIONAL HEADQUARTERS
ACCOUNTANCY ASSISTANT

CANDIDATES must have a wide experience of book-keeping and accountancy and be able to prepare final accounts and balance sheets.

The duties include the posting of the nominal ledger, the production of annual accounts in the prescribed form, the preparation of statistics, financial returns, and revenue budgets.

The salary will be within Grade IX (£635-£735 per annum) of the salary scales of the National Joint Council for Gas Staffs.

The post is pensionable and the successful candidate may be required to pass a medical examination.

Applications giving age, personal details, particulars of training, experience and professional qualifications should be addressed to Mr. F. C. Briggs, Divisional General Manager, West Midlands Gas Board, Wolverhampton and District Division, Kensington House, Bath Street, Dudley, to reach him not later than fifteen days after the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

WEST MIDLANDS GAS BOARD
WOLVERHAMPTON & DISTRICT
(No. 2) DIVISION
CHEMIST OR
TECHNICAL ASSISTANT (CHEMICAL)—
DUDLEY DISTRICT

THE PERSON appointed will be in charge of laboratory staff and responsible to the Works Superintendent for the technical operation and efficiency of the gas manufacturing and ancillary plant. Applicants should have organising ability, together with technical knowledge and experience of gas works processes, preferably including carbonisation in vertical retorts and gas manufacture in a large, modern, fully automatic carburetted water gas plant. Professional qualifications in chemistry would be considered advantageous.

The salary will be in accordance with Grade A.P.T. VIII (£605-£685 per annum) of the National Salary Scales for Gas Staffs.

The post is pensionable and the successful candidate may be required to pass a medical examination.

Applications, giving full information of training and experience, together with the names of two referees, should be sent to Mr. F. C. Briggs, Divisional General Manager, West Midlands Gas Board, Wolverhampton and District Division, Kensington House, Bath Street, Dudley, to reach him not later than fifteen days after the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

(*Classified Advertisements continued on page* 430)

APPOINTMENTS VACANT (ctd.)

NORTH WESTERN GAS BOARD

MANCHESTER GROUP

INSTALLATION INSPECTOR I/C DISTRICT—

CHEETHAM SERVICE CENTRE

APPLICATIONS are invited for the above pensionable appointment at a salary within Grade A.P.T. VI (£510-£590 per annum).

The successful candidate will be responsible to the District Service Officer for the control of the Fittings Inspectors, Maintenance Men and Plumbers. He will be responsible for maintaining a high standard of installation work on the district.

Detailed applications endorsed "Installation Inspector," giving the names of two referees, should reach the General Manager, North Western Gas Board (Manchester Group), Town Hall, Manchester, 2, within fourteen days.

NORTH WESTERN GAS BOARD

WIRRAL GROUP

DISTRICT DISTRIBUTING ENGINEER—

BIRKENHEAD DISTRICT

APPLICATIONS are invited for the above pensionable appointment at a salary within Grade A.P.T. X (£690-£790 per annum).

The successful applicant will be responsible to the Group Distributing Engineer for all aspects of distributing engineering including the control of mainlaying and service laying staff, and the supervision of mainlaying work carried out by contractors, within the district, together with the preparation of schemes for the modification or extension of the existing mains network.

Applicants should possess the Higher Grade Certificate in Gas Engineering (Supply) of the Institution of Gas Engineers, or its equivalent.

Detailed applications, giving the names of two referees, should reach the General Manager, North Western Gas Board (Wirral Group), Hind Street, Birkenhead, within twelve days.

SOUTHERN GAS BOARD

NORTHERN DIVISION

BANBURY AND DISTRICT

GAS UNDERTAKING

DISTRICT INSPECTOR

APPLICATIONS are invited for the position of DISTRICT INSPECTOR at a salary within Grade A.P.T. IV, Provincial 'A', of the National Salary Scales (£320-£510 per annum).

Applicants should be experienced in modern gas fitting practice and qualified to advise consumers, prepare estimates and direct the work of fitters.

A house will be available at a rent in accordance with the Southern Gas Board scale.

The person appointed will be required to pass a medical examination and to contribute to the Board's Staff Pension Scheme, subject to the preservation of any existing pension rights in the gas industry.

Applications, giving age, education, qualifications, experience, present position and salary, and the names of two referees should reach the undersigned not later than March 6, 1954.

F. J. MITCHELL,
Manager.

Banbury and District Gas Undertaking,
Gas Works,
Banbury,
Oxon.
February 10, 1954.

SCOTTISH GAS BOARD

KILMARNOCK GROUP

APPLICATIONS are invited for the position of GROUP TECHNICAL ASSISTANT for the Kilmarnock Group.

The salary will be within the scales A.P.T. VII-IX, Provincial 'A' with placing according to qualifications and experience. The present scales, including the latest cost of living increase, are £565-£735.

Applicants should possess the Higher Grade Certificate (Manufacture) of the Institution of Gas Engineers, or an equivalent qualification, and should be experienced in the operation of vertical and horizontal retorts and water gas plants.

The post is superannuable and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two referees, should be addressed to the undersigned within fourteen days from the appearance of this advertisement.

ROBERT FIFE
Group Manager.

Riverbank Gas Works,
Kilmarnock.

SCOTTISH GAS BOARD

EDINBURGH DIVISION

ASSISTANT WORKS SUPERINTENDENT

(MECHANICAL)

APPLICATIONS are invited for the above position at Granton Gas Works, Edinburgh.

Candidates should be Chartered Mechanical Engineers and have experience in the maintenance of Gas Works or similar plant.

Salary will be within the Grade £715-£840, and a free house and fuel will be provided. The appointment will be subject to a successful medical examination and entry into the Board's Superannuation Scheme.

Applications, together with the names of three referees, should be lodged with the undersigned within fourteen days of the date of this advertisement.

DAVID BEAVIS,
Divisional Controller.

Edinburgh Division,
Scottish Gas Board,
15, Calton Hill,
Edinburgh, 1.

SCOTTISH GAS BOARD

FIFE GROUP

DUNFERMLINE DISTRICT

TECHNICAL ASSISTANT

APPLICATIONS are invited for the position of TECHNICAL ASSISTANT to the above Group.

The salary will be Grade A.P.T. VII-IX, Provincial 'A', minimum £565, maximum £735 with placing according to qualifications and experience.

Candidates should have experience in Gas Engineering and possess the Higher Grade certificate in Gas Engineering (Manufacture). Experience in Vertical and Horizontal Retorts will be an advantage.

The post is pensionable and the successful applicant may be required to pass a medical examination.

Applications endorsed "Technical Assistant" giving full particulars of age, qualifications and experience, together with *copies* of three recent Testimonials, or names and addresses of three referees to whom reference can be made, to be lodged with the undersigned not later than March 10, 1954.

DAVID L. DICKSON,
Group Manager.

Scottish Gas Board,
Gas Offices,
Grange Road,
Dunfermline.

DESIGNER DRAUGHTSMAN with A.I.Mech.E. or equivalent required for research work on coal firing for gas turbines etc. Experience in the design of light structures and pressure vessels desirable. Applicant should have had at least 3 years' experience as draughtsman and preferably 2 years' engineering workshop training. Good salary to suitable applicant. Contributory Pension Scheme. Apply in writing to the Assistant Secretary, Ref. A.4, B.C.U.R.A., Randalls Road, Leatherhead.

WALES GAS BOARD

SWANSEA UNDERTAKING

FIRST-CLASS GAS FITTERS urgently required. Full J.I.C. Rates of Pay (Provincial 'A') and Conditions of Service.

Applications stating age, details of qualifications, etc., should be forwarded to the General Manager and Engineer, Wales Gas Board, Swansea Undertaking, Oystermouth Road, Swansea.
February 12, 1954.

PLANT FOR SALE

FOR SALE :—ELBOWS, malleable iron screwed ¼ in. gas parallel thread, large quantities available at cheap price. Apply: Purchasing Department, Parkinson Stove Co., Ltd., Stechford, Birmingham.

MISCELLANEOUS

3D STIMULATES

THESE DAYS, a sound investment is something to write home about. What we write of here is not a new discovery, for it has long been at the disposal of industry. The point is that only the alert are using it to their full advantage. We refer to the help afforded to administration by a FULL PHOTOGRAPHIC RECORD of construccional jobs from foundation to completed building, from rough casting to finished product. Nothing escapes the eye of the camera. No other recorder covers such a wide field. A progressive file of photographs taken at regular, specified intervals, is an ever-present aid to the busy executive. It can be referred to at once in case of any point which may arise during the construction of plant or the making of a product. It shows progress at a glance unmistakably and eliminates the cause of wrangling and argument.

Walter King Photographs are specially staffed and equipped for this type of work and are prepared to tour the Midlands, Southern Counties, and Home Counties

Details of this photographic service on request to Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.

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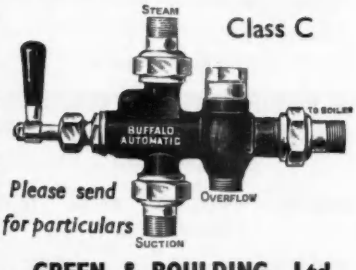
Class C



Please send for particulars

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Sell to those best suited to deal with them.

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man-cooling?

BECAUSE MEN CANNOT WORK at full stretch under the oppressive conditions existing in industrial "hot spots" without some means of relief. Often they resort to "taking a breather". But "breathers" are costly and time-wasting.

Consider the alternative.

The "Tornado" method of man-cooling definitely encourages production all the time. Man-cooling fans deliver, for as long as is necessary, a brisk, cooling air current which relieves excessive body heat and improves breathing conditions. Designed particularly for use in the "heavy" trades they combine an easy portability with robust construction — two essential characteristics.

If your concern is for workers in iron and steel works, foundries, boiler houses, gas retort houses, glass works or "lighter" industries where efficiency is bound up with the maintenance of comfortable working conditions then you should see Publication No. 9/7.

A copy is waiting for you.

ASK FOR PUBLICATION NO. 9/7

Keith Blackman LIMITED

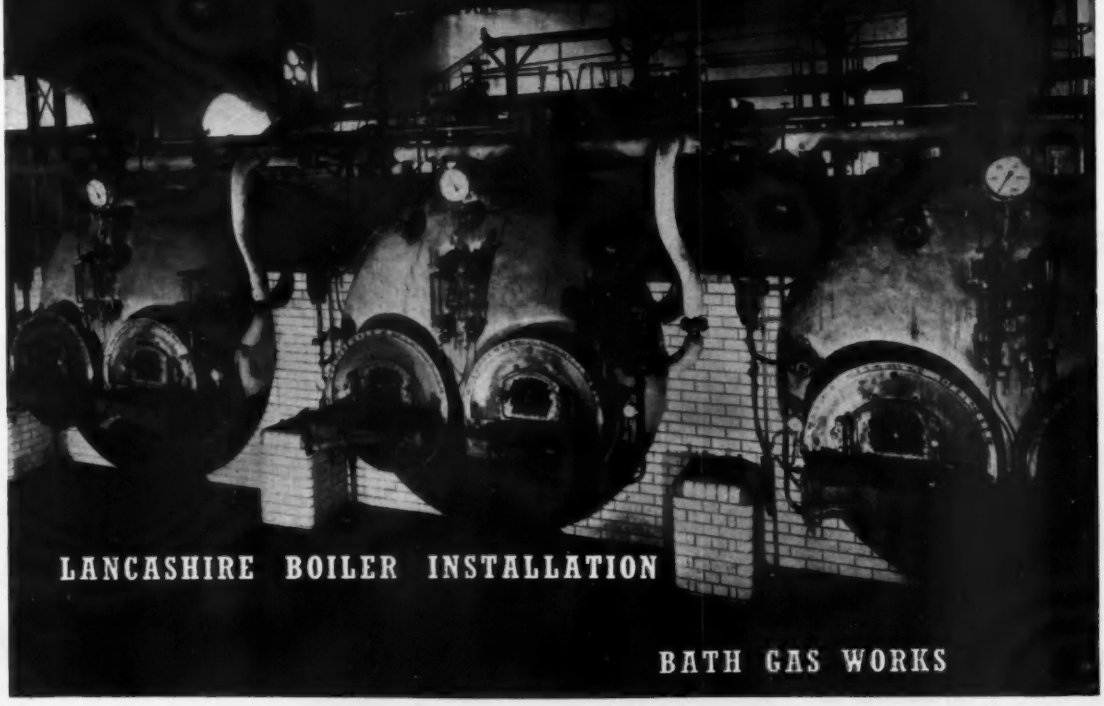
MILL MEAD ROAD, TOTTENHAM, LONDON, N.17

'Phone: Tottenham 4822 (twelve lines) 'Grams: "Keithblac, Norphone, London"

BRANCH OFFICES AT MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW, NEWCASTLE-ON-TYNE, PENARTH near CARDIFF, AND BELFAST

486

CLAYTON SON & CO., LTD., HUNSLET, LEEDS



LANCASHIRE BOILER INSTALLATION

BATH GAS WORKS

Registered as a Newspaper. Printed by STRAKER BROTHERS LTD., E.C.2 for WALTER KING LIMITED, 11, BOLT COURT, FLEET ST., LONDON, E.C.4, Wednesday, February 17, 1954.

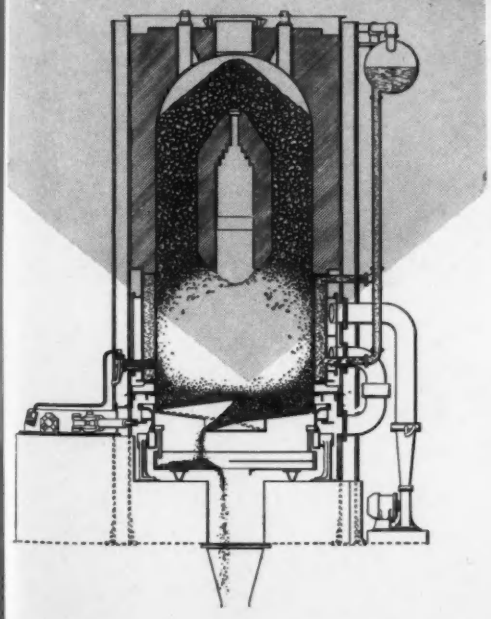
WEST'S "HOT GAS" MECHANICAL PRODUCER

HOT GAS EFFICIENCY 90%

REDUCES LABOUR COST

SAVES FUEL

DUST EXTRACTION 90%



West's "Hot Gas" Mechanical Producer is a notable development in carbonization technique.

Fuel gas is drawn from immediately above the flare bed by a centrally placed offtake which is completely insulated, enabling full advantage to be taken of the sensible heat conveyed DIRECT to the setting. Ashes, removed by a revolving helical grate, show a marked reduction in combustible content. Constant depth of ash below the fuel bed is maintained by a novel device which controls the speed of the grate.

There is little variation in fuel gas quality. The producer is adaptable to various cokes and only low blast pressure is required.

West's Gas IMPROVEMENT CO. LTD.

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London Office: Columbia House, Aldwych, W.C.2. Telephone: HOLborn 4108-9 Telegrams: Wesgasco, Estrand

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